Report No. FAA-EE-79-03

LEVEL II

B.S. 12

NOISE LEVELS AND FLIGHT PROFILES OF EIGHT HELICOPTERS USING PROPOSED INTERNATIONAL CERTIFICATION PROCEDURES

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MARCH 1979
Final Report

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Office of Environment and Energy
Washington, D.C. 20591

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(14) FAA-AEE-79-03

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT-FAA-AEE-79-03		(12) 298

(6) 4. Title and Subtitle: Noise Levels and Flight Profiles of Eight Helicopters Using Proposed International Certification Procedures.

(11) 5. Report Date: March 1979

6. Performing Organization Code: DOT/FAA

(10) 7. Author(s): J. Steven Newman and Edward J. Rickley*

8. Performing Organization Report No.: DOT-FAA-AEE-79-03

9. Performing Organization Name and Address:
Department of Transportation
Federal Aviation Administration
300 Independence Avenue, S.W.
Washington, D.C. 20591

10. Work Unit No. (TRAIS)

11. Contract or Grant No.

(9) 12. Sponsoring Agency Name and Address:
Department of Transportation
Federal Aviation Administration
600 Independence Avenue, S.W.
Washington, D.C. 20591

13. Type of Report and Period Covered: Final Report.

14. Sponsoring Agency Code: FAA

15. Supplementary Notes
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16. Abstract

This document reports the findings of helicopter noise tests conducted at the FAA National Aviation Facility Experimental Center (NAFEC), located in Atlantic City, New Jersey. The tests were conducted with the following objectives: first, determine the feasibility of a takeoff procedure for helicopter noise certification; second, establish a data base of helicopter noise levels to be used in defining noise standards; third, acquire helicopter acoustical spectral data for a variety of acoustical angles for use in the FAA Integrated Noise Model. This report addresses the first two objectives. Noise data are presented in terms of the corrected Effective Perceived Noise Level (EPNL). Corrections of data are carried out in accordance with FAR 36 procedures and/or procedures considered appropriate for use in possible future noise standards. Position corrections are conducted using unique takeoff reference flight paths for each helicopter; approach and level flyover reference paths are the same for all the helicopters. Correction procedures are evaluated for applicability to helicopter noise sources. Flight profiles and ground tracks are presented for each takeoff event along with ground speed data. Actual cockpit indicated air speed is also reported for most events along with main rotor RPM. A regression analysis is conducted correlating EPNL with helicopter weight for the NAFEC test data. An aggregate regression analysis is also conducted which groups NAFEC helicopter data with data from other sources.

17. Key Words	18. Distribution Statement
Effective Perceived Noise Level (EPNL) Noise Data Corrections Reference Flight Paths Helicopter Noise Certification. Helicopter Noise	This document is available to the U.S. public through the National Technical Information Service, Springfield, Virginia 22161.

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	298	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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PREFACE

In April 1978, the members of the International Civil Aviation Organization (ICAO) Committee on Aircraft Noise (CAN) Working Group B reviewed a proposal which would add a chapter to ICAO Annex 16 containing noise certification standards for helicopters. Three tests were proposed: (1) flyover 150 meters above gound level at no less than 90 percent of V_H (maximum speed in level flight with maximum continuous power) or V_{NE} (never exceed speed), whichever is lower; (2) approach along a 6 degree slope; and (3) takeoff at V_y (speed for best rate of climb) or the lowest airworthiness approved speed above V_y. Noise data from each of these tests would be taken at three microphone sites and the data from the three sites averaged for each test. Noise level limits have been proposed using EPNL as the measurement unit. The noise measurements would require a three-microphone array aligned 150 meters apart, one on the reference flight track and the other two microphones perpendicular to and on either side of the reference track. This report describes the results of a noise measurement program designed to test the feasibility and practicality of the proposed ICAO certification procedures. The report also examines correction procedures and identifies a relationship between EPNL and helicopter weight.

This document supersedes the Preliminary Report of August 29, 1978, and the Addendum to the Preliminary Report released September 8, 1978. Those documents were prepared in order to provide advance (and preliminary) information to those involved with the ICAO Working Group B meeting held September 18-21, 1978.

ACKNOWLEDGEMENTS

This report could not have been prepared without the cooperation and assistance of the FAA National Aviation Facility Experimental Center, (NAFEC) and the DOT Transportation Systems Center. Our special thanks are also extended to the following participating organizations:

Petroleum Helicopters, Inc.
Provided the PUMA and BO-105

U.S. Air Force First Helicopter Squadron
Andrews Air Force Base, Maryland
Provided the Bell 212 (H-1) and the
Sikorsky S-61 (H-3)

Purolator, Inc.
Provided the Gazelle

Ronson Aviation, Trenton, New Jersey
Provided the Hughes 500C

TABLE OF CONTE 'TS

TABLE OF CONTENTS (Cont'd)

LIST OF SYMBOLS AND ABBREVIATIONS

A-Level	Maximum A-weighted sound pressure level, expressed in decibels (dBA)
A	Approach operational mode
α_i	Atmospheric absorption coefficient for the ith one-third octave for test day conditions
α_{i^o}	Atmospheric absorption coefficient for the ith one-third octave for standard acoustical day conditions
C(k)	Tone correction, dB
CPA	Closest point of approach. Subscripts typically refer to the reference or test flight paths, (CPA_R and CPA_T)
CL	Centerline
CL-C	Centerline-center microphone location
CL-E	Centerline-east microphone location
CL-W	Centerline-west microphone location
D-Level	D-weighted sound pressure level, expressed in decibels (dBD)
Data Set 2	Helicopter noise data from sources other than the subject NAFEC test
dB	Decibels
Δ	Delta, or change in value
Delta 1	Correction term obtained by correcting SPL values for atmospheric absorption and flight track deviations per FAR 36, Amendment 9, Appendix A, Section A36.11, Paragraph d $\Delta 1 = ATM + \Delta DIS$

Delta ATM	Correction to PNLTM obtained by applying atmospheric absorption correction to the measured PNLTM spectra
Delta DIS	Correction to PNLTM obtained by applying inverse square law corrections to the as measured PNLTM spectra, accounting for flight track deviations from the reference track PNLTM (corrected) = PNLTM (as measured) + Δ 1
Delta two	Duration correction to EPNL, computed as 10 log (CPA_1/CPA_2)
EPNL	Effective perceived noise level, expressed in decibels (EPNdB)
EV	Event, test run number
ICAO	International Civil Aviation Organization
IRIG-B	Inter-Range Instrumentation Group B (established technical standard)
LFO	Level flyover operational mode
NAFEC	National Aviation Facility Experimental Center
OASPL	Overall sound pressure level, dB
PNL	Perceived noise level, expressed in decibels (PNdB)
PNLT	Tone-corrected perceived noise level, expressed in decibels
R	Regression coefficient
R^2	Coefficient of determination
RH	Relative humidity in percent
SL	Sideline
SL-N	Sideline-north microphone location
SL-S	Sideline-south microphone location
SPL	Sound pressure level
SR	Slant range distance, distance from the noise source to the receiver. Subscripts typically refer to the reference or test slant ranges (SR_R and SR_T or SR_1 and SR_2)

T	Air Temperature in degrees fahrenheit
T/O	Takeoff operational mode
VASI	Visual approach slope indicator
V_H	Maximum speed in level flight with maximum continuous power
V_{NE}	Never exceed speed
V_y	Speed for best rate of climb
V_T	Test velocity (airspeed)
V_R	Reference velocity (airspeed)
(+)	Including or "adding in" (i.e., NAFEC Data (+) Data Set 2)
(-)	Deleting or "subtracting out" (i.e., NAFEC Data (+) Data Set 2 (-) NAFEC Repeats)

NOTE

It is assumed that the reader will round off computationally generated decibel values to the tenths place.

LIST OF FIGURES

LIST OF FIGURES (Cont'd)

LIST OF TABLES

EXECUTIVE SUMMARY
OF
RECOMMENDATIONS AND CONCLUSIONS

1. The test data provide the basis for establishing a statistical relationship between helicopter noise and helicopter weight. The EPNL dependence on helicopter weight follows a 10 log weight relationship for all three operational modes examined (takeoff, approach, and level flyover).

2. Variation of helicopter test weight (within a consistent technology category) is shown to statistically account for 82.5 percent of EPNL variation for takeoffs, 86.7 percent of EPNL variation for approaches, and 77.3 percent of EPNL variation for level flyovers.

3. Speed deviations from reference conditions should be accounted for by using speed trial curves to establish the resultant change in EPNL. Each individual helicopter exhibits a unique hyperbolically shaped EPNL/air speed relationship.

4. Analysis of the atmospheric absorption "no correction" window reveals approximately a 0.5 dB benefit to an applicant testing at 95°F, between 60 and 90 percent relative humidity.

5. The average EPNL differentials observed between: (a) application of tone correction procedures from 800 Hz to 10 kHz, and (b) application of tone correction procedures from 50 Hz to 10 KHz are, + 0.6 dB for takeoff, + 0.7 dB for approach, and + 0.6 dB for level flyover.

6. The takeoff rotation point, located 1650 feet (503m) from the center of the microphone array, will yield acceptable signal-to-noise ratios for all test helicopters. Both takeoff and approach test procedures were demonstrated to be feasible although there was some tendency to overshoot the takeoff rotation point and to fly slightly above the reference 6 degree approach path.

7. Pilots more familiar with disciplined flight procedures were observed to adhere more consistently to reference takeoff and approach paths. Helicopter manufacturer test pilots should find the test procedures very reasonable.

8. Requiring a more rigorously defined standard for ground plane surface for microphone placement (than currently required in Part 36 or Annex 16) would provide increased confidence in grouping or comparing helicopter noise data from different measurement programs.

1.0 INTRODUCTION

1.1 TEST OVERVIEW

Noise measurements were conducted at the Federal Aviation Administration (FAA) National Aviation Facility Experimental Center (NAFEC), (Figure 1.1.1) during the week of June 12, 1978, for the following helicopters:

SA 330J PUMA (French)	June 12, 1978
MBB- BO-105 (German)	June 12, 1978
Bell 206-L (U.S.)	June 13, 1978
Sikorsky S-61 (U.S.)	June 14, 1978
Sikorsky S-65 (CH-53) (U.S.)	June 14, 1978
Bell 212 (UHIN) (U.S.)	June 15, 1978
Sikorsky (S-65) (CH-53) (U.S.)	June 15, 1978
SA 341G Gazelle (French)	June 15, 1978
Bell 206-L (U.S.)	June 16, 1978
Hughes 500C (U.S.)	June 16, 1978

Data were recorded for six level flyovers, six takeoffs, and six approaches for each rotorcraft. The measurement program was conducted by the FAA Office of Environment and Energy with support from the Transportation Systems Center (TSC) Noise Measurement and Assessment Laboratory (acoustical measurement and data reduction) and NAFEC (tracking, range control, and air space management).

1.2 MEASUREMENT LOCATIONS

An array of five microphones was emplaced near the east end of Runway 26 at NAFEC. The array consisted of three flight path centerline microphones with sideline microphones flanking the center location. A spacing of 500 feet (approximately 150 meters) was established between the center microphone location and each of the other four microphones. A clear circle, approximately 200 feet (61 meters) in diameter, was mowed around each microphone location. Grass, three to four feet high, bordered each cleared circle. The microphone locations are shown on each of the flight path schematics, Figures 1.2.1 through 1.2.3.

1.3 ORIENTATION OF FLIGHT PATHS

The direction of operation for takeoff and approach was from the east to the west, on a heading of 260°. Level flyovers were conducted in both the 260° as well as the 080° direction. The reference flight track was parallel to and 75 feet (23 meters) to the left of the Runway 26 centerline.

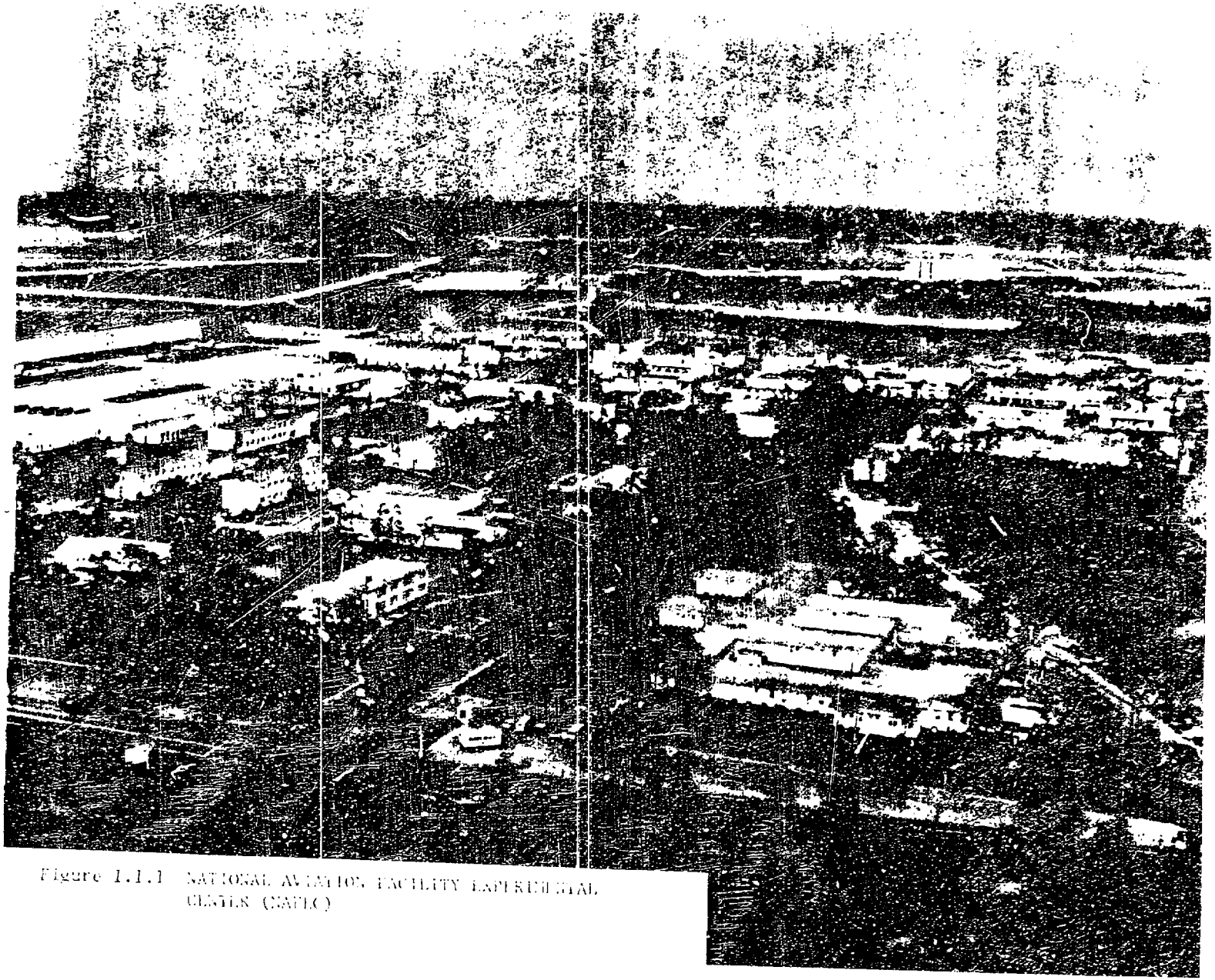


Figure 1.1.1 NATIONAL AVIATION FACILITY EXPERIMENTAL CENTER (NAFEC)

Visual cues (squares of plywood painted bright yellow) were provided to define the rotation point for takeoffs and the break off point for both takeoffs and approaches in the 260° direction. A standard red/white visual approach slope indicator (VASI) set at a 6° glide slope angle was used for the approach portion of the test. In addition, the rotorcraft flight profile and track were monitored in real-time by NAFEC range control personnel who transmitted flight track correction information to the pilot, as required. The flight paths, visual cues, VASI, and microphone locations are shown in Figures 1.2.1 through 1.2.3.

1.4 ACOUSTICAL MEASUREMENT INSTRUMENTATION

TSC deployed Nagra two-channel direct-mode tape recorders operating with preemphasis on one channel. The preemphasis network rolled off those frequencies below 10,000 Hz at 20 dB per decade. The filtered signal was then amplified to achieve signal levels within the top 20 dB of the linear recording range. The use of preemphasis is necessary in order to boost the high frequency portion of an acoustical signal (such as a helicopter spectra) characterized by large level differences (30 to 60 dB) between the high and low frequencies. Recording gains were adjusted so that the best possible signal-to-noise ratio would be achieved while allowing enough "head room" to comply with applicable distortion avoidance requirements.

IRIG-B time code synchronized with the tracking time base was recorded on the cue channel of each system. The typical measurement system consisted of a General Radio ½ inch electret microphone oriented for grazing incidence driving a General Radio P-42 preamp and mounted at a height of four feet (1.2 meters). A 100-foot (30.5 meters) cable was used between the tripod and the instrumentation vehicle located at the perimeter of the circle. A schematic of the acoustical instrumentation is shown in Figure 1.4.1.

1.5 TRACKING

The NAFEC phototheodolite tracking system was used for aircraft position determination. The accuracy of the system is approximately ±2 feet for the distances encountered between the targets and the tracking towers. The phototheodolite operators were

FIGURE 1.2.1
TAKEOFF FLIGHT PATH

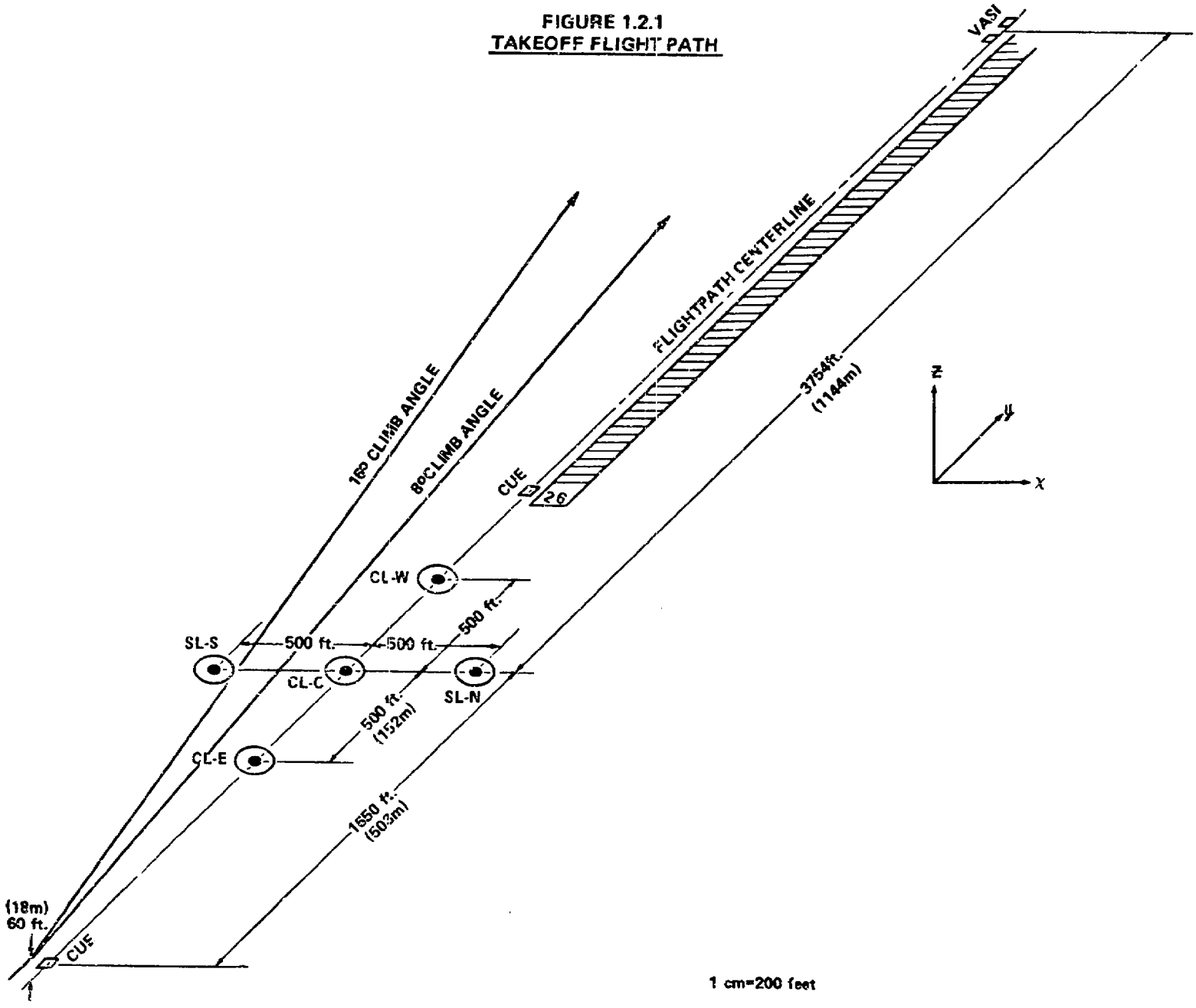
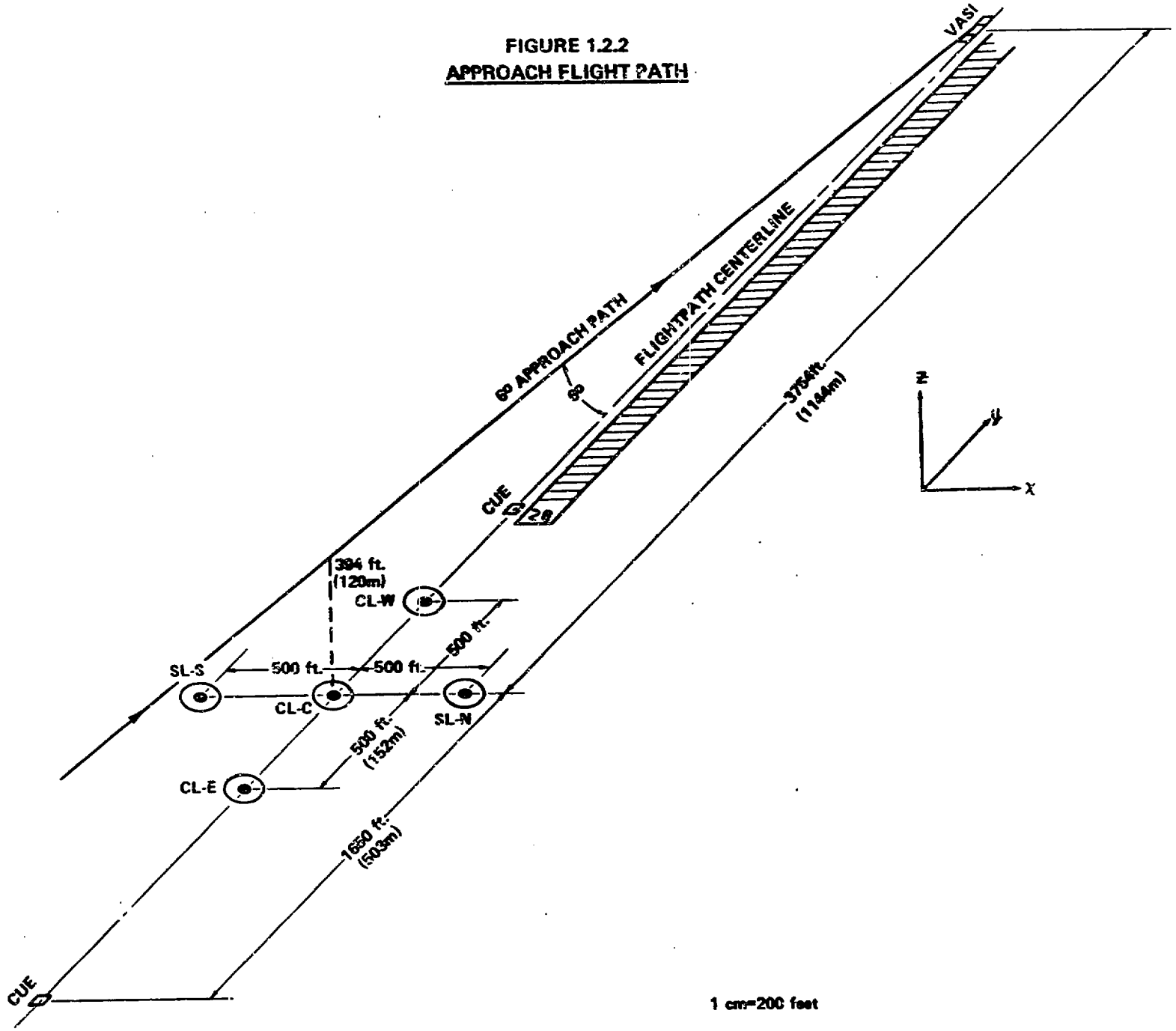


FIGURE 1.2.2
APPROACH FLIGHT PATH



1 cm=200 feet

FIGURE 1.2.3
LEVEL FLYOVER FLIGHT PATH

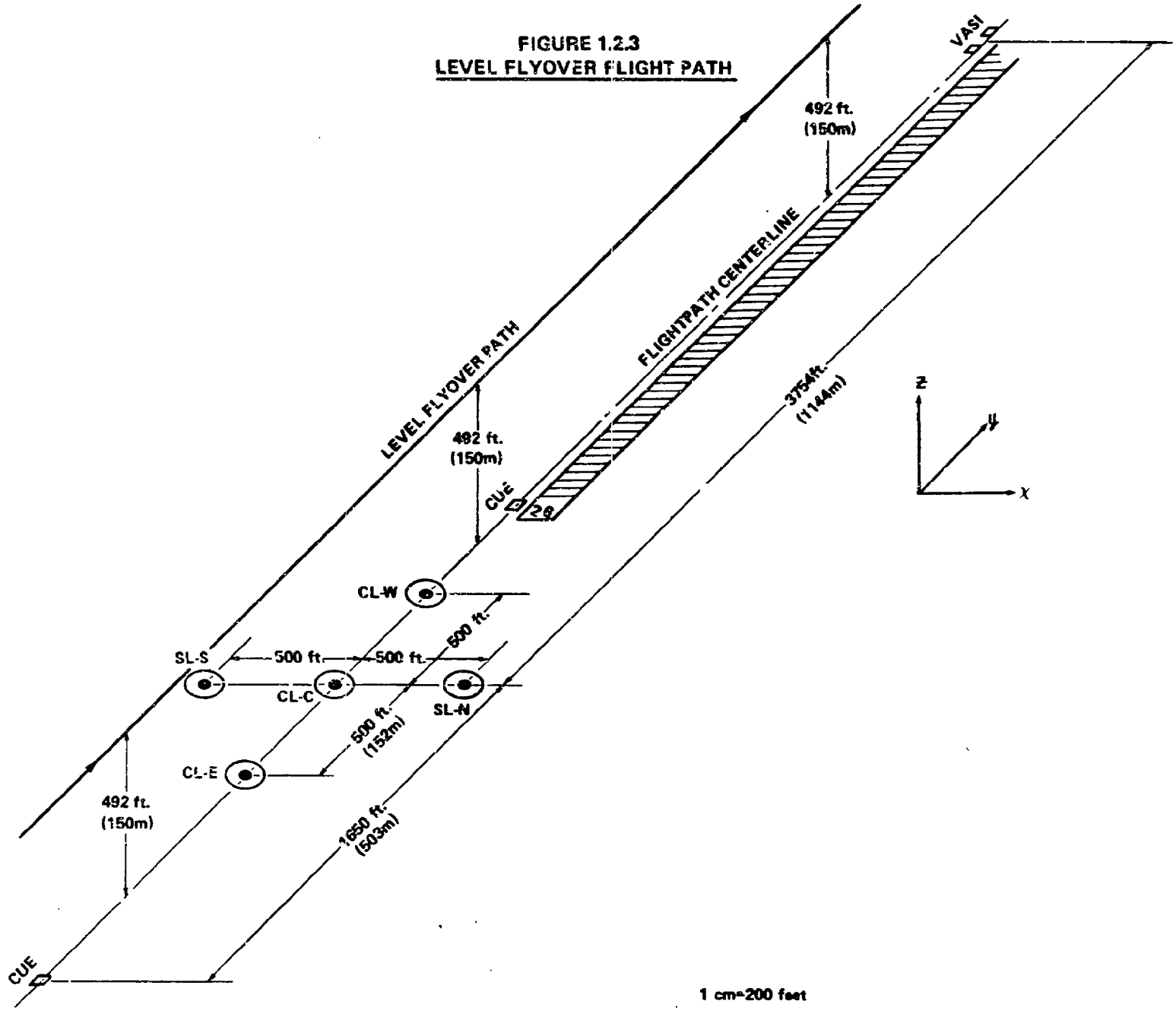
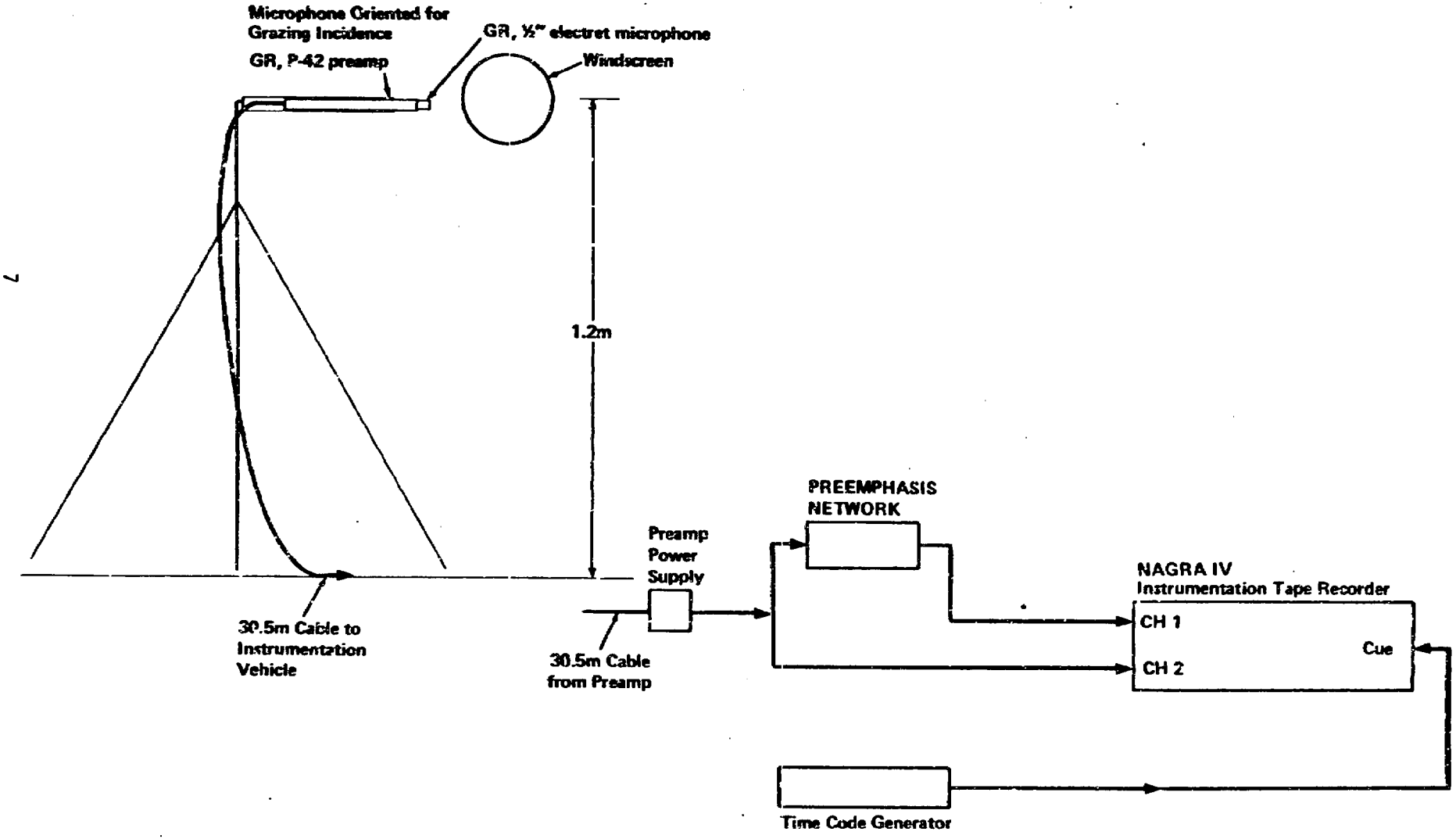


FIGURE 1.4.1
ACOUSTICAL MEASUREMENT INSTRUMENTATION



instructed to track the main rotor hub. Three dimensional coordinates were provided for each 0.2 second interval. A photograph of a typical phototheodolite tracking station is shown in Figure 1.5.1.

1.6 METEOROLOGICAL DATA

The NAFEC National Weather Service Office readings were utilized for dry and wet bulb temperatures, windspeed, and wind direction. The temperature transducers were located approximately midfield at a height of 10 feet (3 meters) above field elevation, the wind instruments were at a height of 20 feet (6 meters) above field elevation. Readings were noted every 15 minutes during the tests. These data are presented along with track information in Section 6.4. The dry bulb thermometer and dew point transducer were contained in the Bristol, HO-52 system operating with $\pm$ ½ degree accuracy. The windspeed and direction were measured with the Electric Motor Company F420 system operating with an accuracy of $\pm$1 knot and $\pm$1 degree.

1.7 COCKPIT DATA ACQUISITION

A photograph of the instrument panel was taken at the midpoint of each data run, approximately overhead the center centerline microphone position. The time-correlated rotor speed (RPM) and airspeed have been read from each photograph and are presented in Appendix A Typical cockpit instrument panel photographs are shown in Figures 1.7.1 through 1.7.4. The relationship of these parameters to the noise data is discussed in following sections.

1.8 AMBIENT NOISE

Careful steps were taken to ensure as low an ambient noise condition as possible during the tests. NAFEC flight-line operations were curtailed during the tests, and all controlled air traffic operations were kept away from the airfield through cooperation of the Air Traffic Control Tower and issuance of a Notice to Airmen (NOTAM) which effectively closed the airport.

In addition, the local Air National Guard Fighter Interceptor Squadron curtailed their F-106 run-up operations during the test period. Despite these thorough precautions, the local bird population interfered with a few of the data runs. However, in general, the signal level provided by the helicopters was more than adequate to overcome the chirping. The use of firecrackers, as well as a propane electrostatic-ignition "scare-away" cannon, was ineffectual in driving away or silencing the birds.

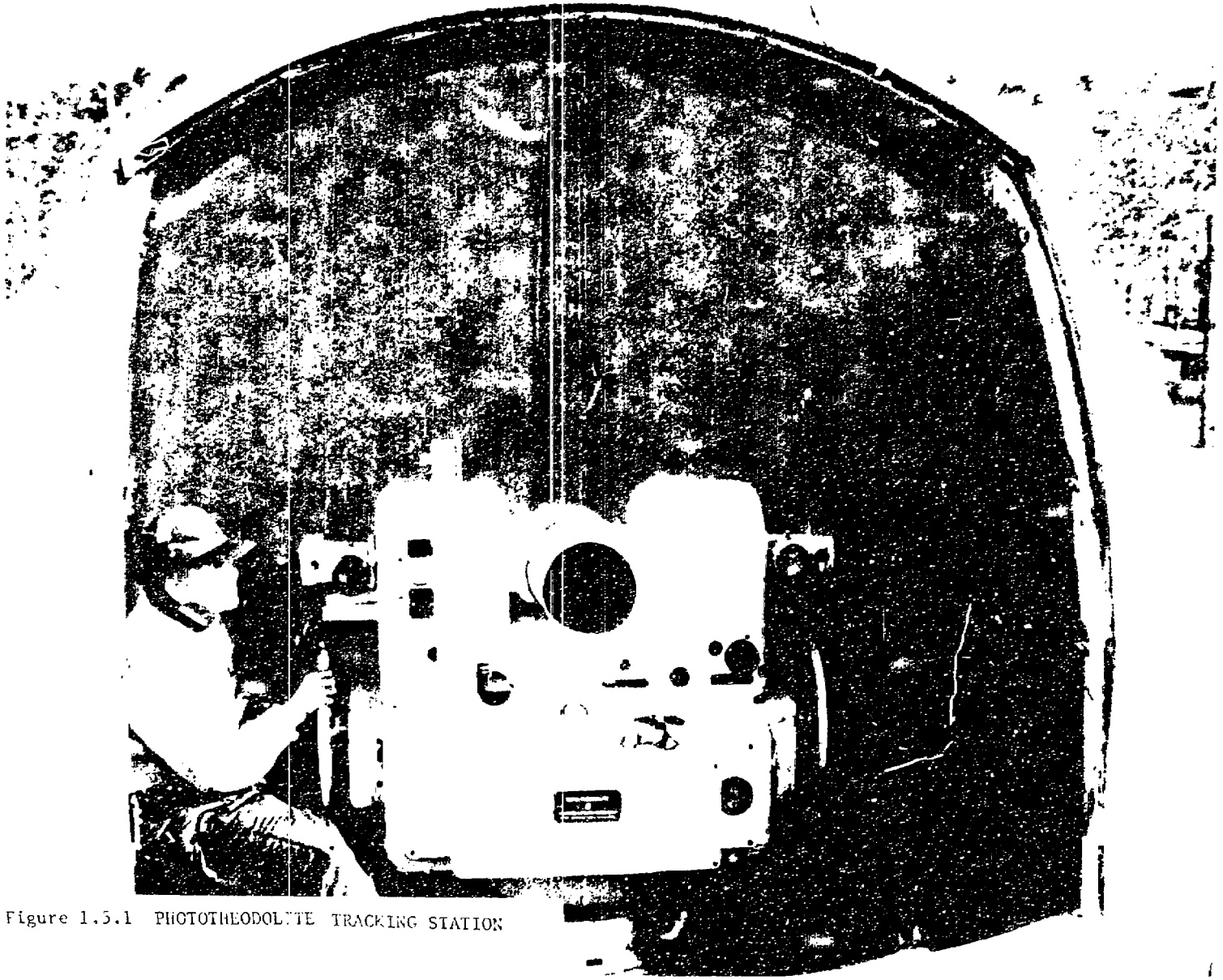


Figure 1.5.1 PHOTOTHEODOLITE TRACKING STATION

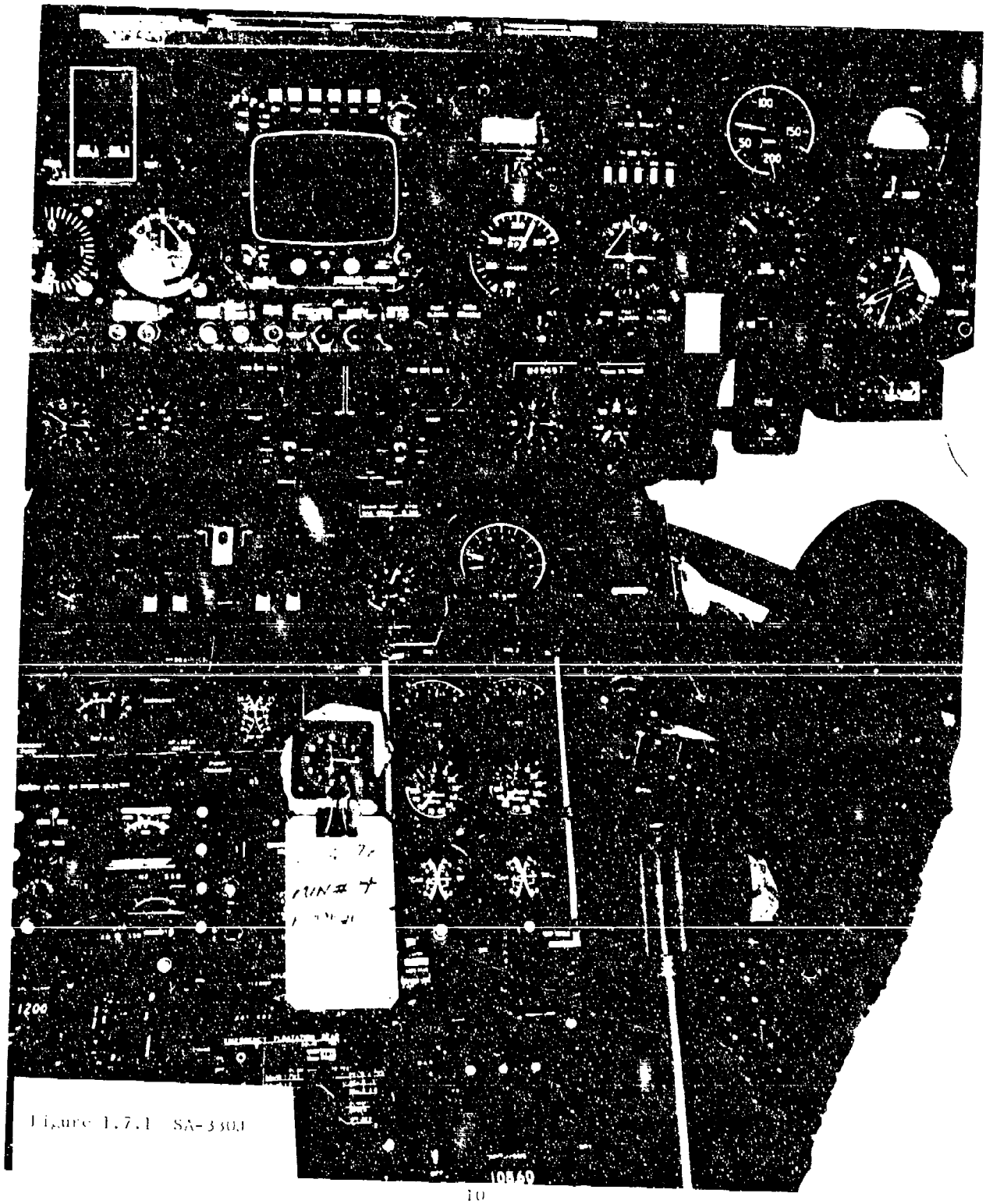


Figure 1.7.1 SA-330J

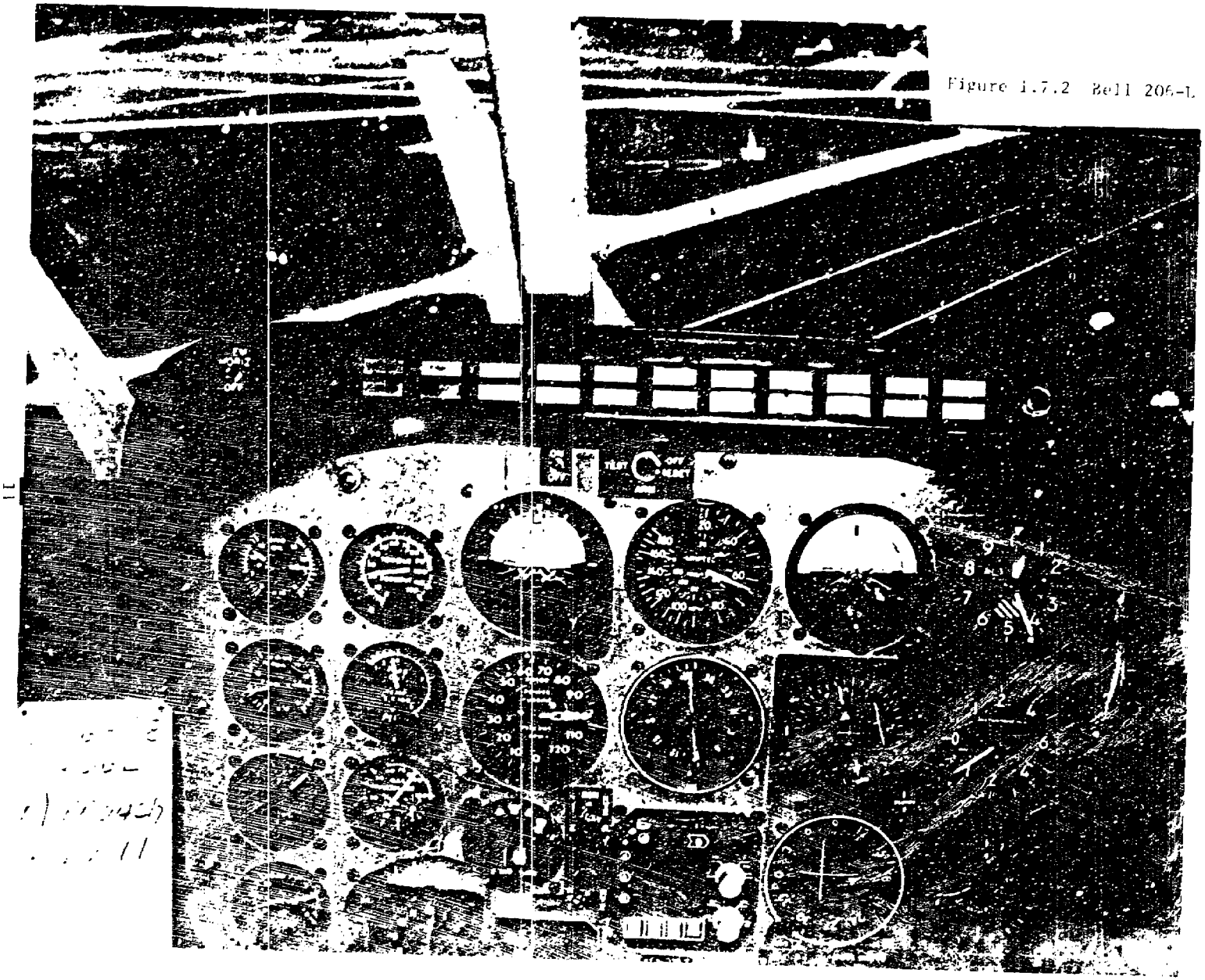


Figure 1.7.2 Bell 206-L

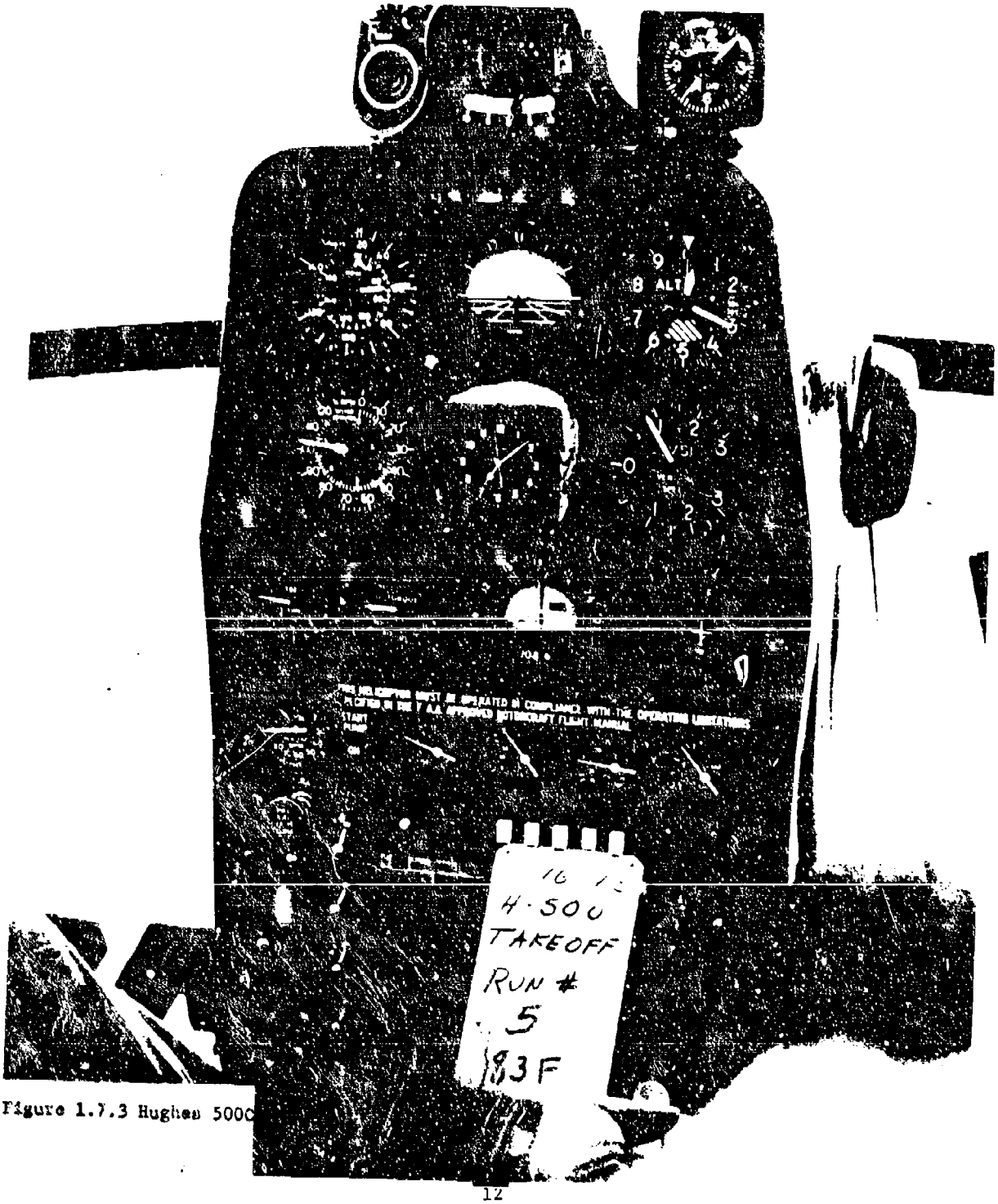


Figure 1.7.3 Hughes 500C

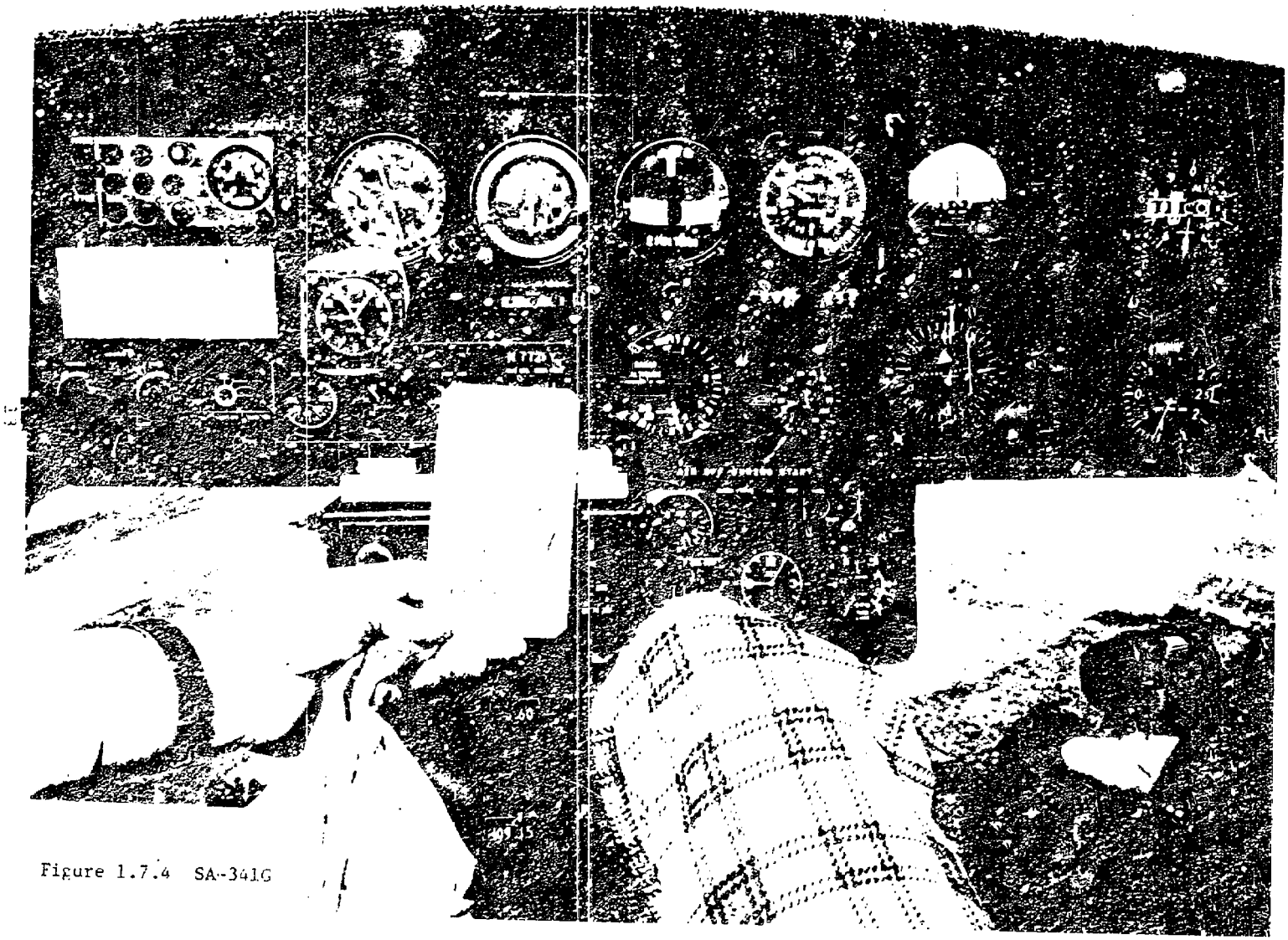


Figure 1.7.4 SA-341G

2.0 HELICOPTER OPERATION AND DESCRIPTION

This section describes pertinent characteristics of the test helicopters and reviews test operational procedures. The reference flight paths are also identified.

2.1 HELICOPTER OPERATIONAL PROCEDURES

The pilots of each rotorcraft were provided the following briefing:

Flyover Test:

1. Pass over the center-centerline microphone at a height of 492 feet (150 meters).

2. Stabilize airspeed at the minimum of 90 percent V_H (maximum speed in level flight with maximum continuous power) or 90 percent V_{NE} (never exceed speed), whichever is less.

3. Stabilize rotor speed at maximum (top of the green arc) normal operating RPM.

Approach Test:

1. Maintain a steady approach angle of 6° ($\pm$ 0.5°).

2. Stabilize speed at V_y (speed for best rate of climb) $\pm$ 3 knots, or the maximum velocity of the curve contiguous to the ordinate of the limiting height-speed envelope $\pm$ 6 knots whichever is greater.

3. Stabilize rotor speed at maximum (top of the green arc) normal operating RPM.

Takeoff Test:

1. Approach the rotation point at an altitude of 60 feet above ground level.

2. Maintain stable airspeed throughout the test at V_y (speed for best rate of climb) $\pm$ 3 knots or the maximum velocity of the curve contiguous to the ordinate of the limiting height-speed envelop $\pm$ 6 knots, whichever is greater.

3. Maintain stable rotor speed throughout the test at maximum (top of the green arc) normal operating RPM.

4. Begin climbout at the designated marker with application of takeoff power while maintaining the prescribed stabilized speed and rotor RPM.

2.2 REFERENCE FLIGHT PATHS

Level Flyover (LFO): The reference flight path is level flight 492 feet (150 meters) above field elevation along the microphone array centerline. The minimum slant distance to each centerline site is 492 feet while the minimum distance to the sideline sites is 695.8 feet (212 meters).

Approaches (A): The reference approach path is a 6° glide slope along the microphone array centerline with ground plane intersection at a point 3,754 feet (1144 meters) from the centerline-center microphone.

Takeoff (T/O): Reference takeoff flight paths are shown on the respective figures in Section 6.4 for each helicopter. The reference departure profiles are based on the following:

Helicopter	Vy (knots)	Rate of Climb (ft. per min.)	Climb Angle (degrees)
SA-330J	70 kt	1175	7.6°
BO-105	70 kt	1700	16.2°
Bell 206-L	52 kt	1380	15.2°
S-61	74 kt	1100	8.4°
S-65	76 kt	1800	13.5°
Bell 212	55 kt	1350	14.0°
SA-341G	65 kt	1378	12.1°
Hughes 500C	50 kt	1440	16.5°

2.3 HELICOPTER CHARACTERISTICS

Pertinent noise related helicopter characteristics are tabulated in Table 2.3.1. This format has been used in previous ICAO Working Group B (helicopter) noise data reports. The engine, main rotor, and tail rotor, as well as general performance characteristics, have been noted, recognizing their influence on the generation of external noise. Photographs of each test helicopter are shown in Figures 2.3.1 through 2.3.8.

TABLE 2.3.1 *
HELICOPTER CHARACTERISTICS

MANUFACTURER	Aerospatiale	Messerschmitt Bolkow Blohm	Bell	Sikorsky	Sikorsky	Bell	Hughes	Aerospatiale
COUNTRY	France	Germany	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	France
Model	PUMA SA 330J	BO-105	206-L	S-61 (H-3)	S-65 (H-53)	212 (H-1)	500C	Gazelle SA 341G
Number of Engines	2	2	1	2	2	2	1	1
Maximum Takeoff Weight (kg.) (lb.)	7042 15532	2300 5070	1814 4000	10,000 22,050	16,775 37,000	4762 10,500	1157 2550	1800 3970
Maximum Continuous Power (HP)	2 x 1575	2 x 420 shaft/horsepower (shp)	370 shp (T/O 420 shp)	2 x 1400 shp	7560 shp (Combined)	1800 shp	400 shp	1 x 590 shp
Specific Fuel Consumption Max. Power lb/hp/hr	0.62	0.63	0.63	0.61	0.48	0.595	0.63	0.62
"Maximum Continuous Speed"	260 kmh 140 kt	241 kmh 130 kt	241 kmh 130 kt	267 kmh 144 kt	196 mph 170 kt	194 kmh 104.4 kt	244 kmh 131.3 kt	264 kmh 142 kt

* Note: The data presented in this table have been derived from the following sources:
1. ICAO Working Group B H(3) Working Paper 10
2. Jane's All The World's Aircraft, 1975-1976
3. Jane's All The World's Aircraft, 1977-1978

TABLE 2.3.1
HELICOPTER CHARACTERISTICS

MODEL	PUMA SA 330J		BO-105		206L		S-61 (H-3)		S-65 (H-53)		212 (H-1)		500C		Gazelle SA 341G	
Speed (km/hr) (knots)	Never exceed 260 km/hr 161 mph		Never exceed 270 km/hr 167mph		Max. level 241 /km/hr 150 mph		Max. level 261 km/hr 162 mph		Max. level 299 km/hr 186 mph		Never exceed 185 km/hr 115 mph		Max. cruise 232 km/hr 144 mph		Max. cruise 264 km/hr 164 mph	
Speed (km/hr) (knots)	Max. cruise 252 km/hr 161 mph		Max. cruise 245 km/hr 152 mph		Cruise 209 km/hr 130 mph		Cruise max. range 232 kmh 125 mph		Cruise 278 km/hr 173 mph		Max. cruise 185 km/hr 115 mph		Cruise max. range 217 km 135 mph		Econ cruise 233 km/hr 145 mph 126 kt	
Main & Tail Rotors	Main	Tail	Main	Tail	Main	Tail	Main	Tail	Main	Tail	Main	Tail	Main	Tail	Main	Tail
Diameter (m)	15.1	3.04	9.82m	1.9m	11.28	1.58	18.91	3.15	22.02m	4.88m	14.64	2.59	8.03	1.30	10.5	.695m
Number of Blades	4	5	4	2	2	2	5	5	6	4	2	2	4	2	3	13
Chord (cm)	60	18.7	27	17.9	33	13.3	46.4	14.5	66	19.1	53.3	29.2	17.1	12.3	300	4
Blade load (kg/m^2)	398		434	676	475		424	385			580		423		401	
Peripheral Velocity (m/s)	209	204	219	221.4	232.7		201	187.3	213.5	217.8	248.3	225.7	203.2	211	208	212

Figure 2.3.1 SA-330J (PUMA)

Figure 2.3.2 BO-105

Figure 2.3.3 BELL 206-L

Figure 2.3.4 S-65 (CH-53)

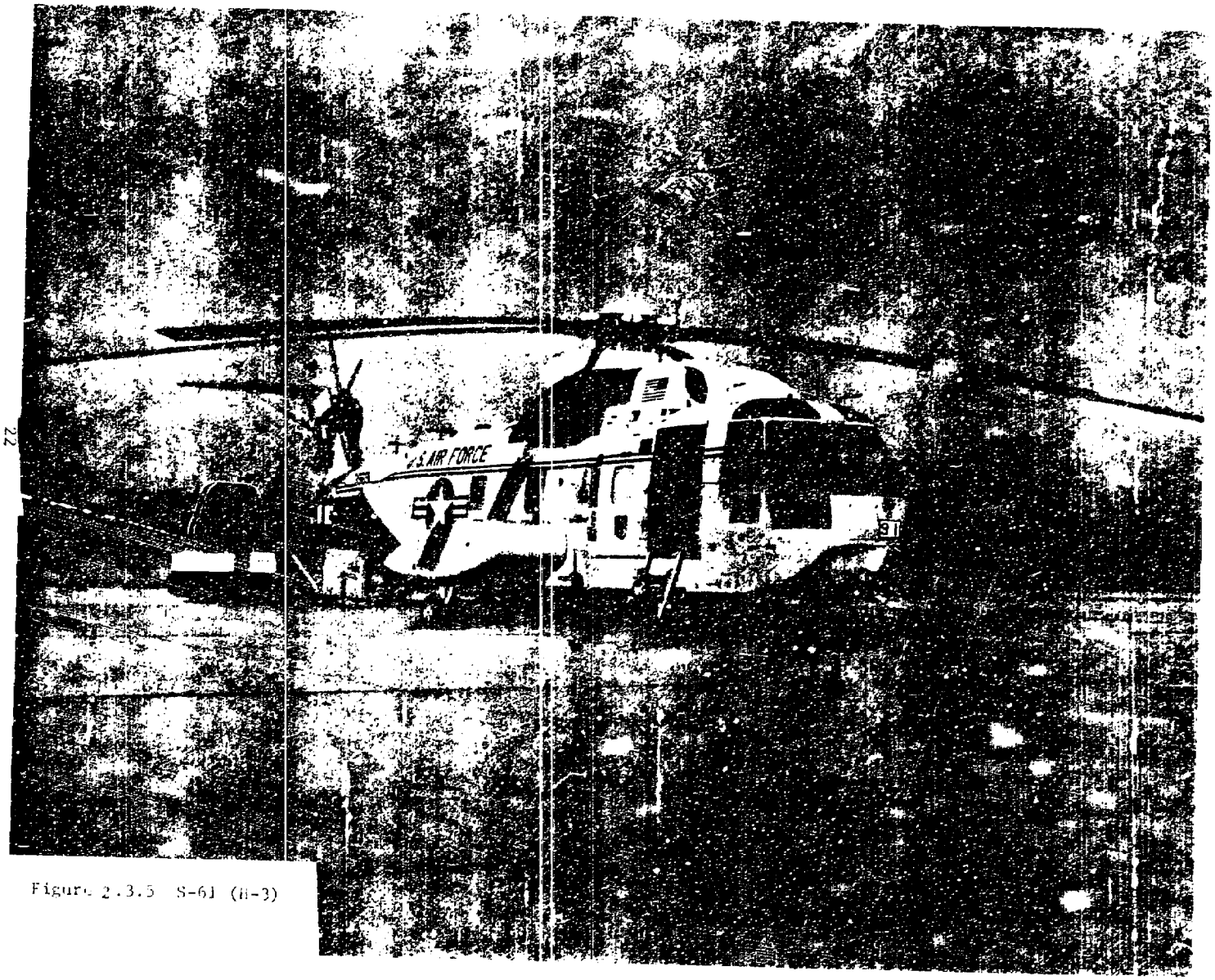


Figure 2.3.5 S-61 (H-3)

Figure 2.3.6 BELL 212 (UH1N)

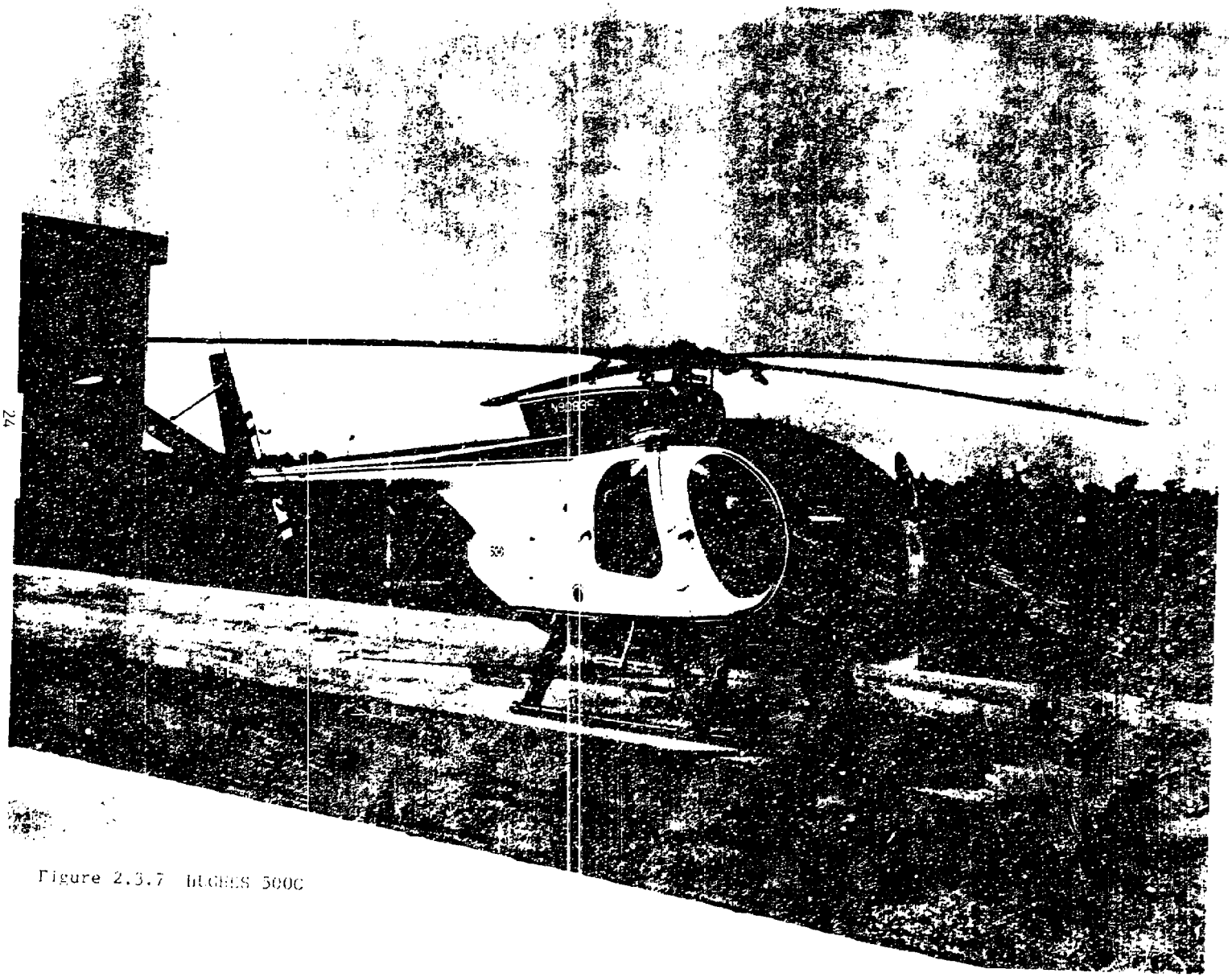


Figure 2.3.7 HUGHES 500C

Figure 2.3.6 SA-341G (GAZELLE)

3.0 NOISE DATA REDUCTION

The analog magnetic tape recordings analyzed at the TSC Laboratory in Cambridge, Massachusetts, were fed into magnetic disc storage after filtering and digitizing using the GenRad 1921 one-third octave real-time analyzer. Recording system frequency response adjustments were applied, assuring overall linearity of the recording reduction system. The stored 24, one-third octave sound pressure levels (SPLs) for each of the one-half second integration periods making up each event comprise the base of "raw data." Data reduction followed the basic procedures defined in Federal Aviation Regulation (FAR) Part 36. The following sections describe the steps involved in arriving at final values of EPNL.

3.1 SPECTRAL SHAPING

The raw spectral data were adjusted by sloping the spectrum shape at -2 dB per one-third octave for those one-third octaves (above 1.25 kHz) where the signal-to-noise ratio was less than 5 dB. This procedure was applied in cases involving no more than 9 "missing" one-third octaves. The shaping of the spectrum over this range (9 bands) was conducted in order to minimize EPNL data loss. This spectral shaping methodology deviates from the FAR 36 procedures in that the extrapolation includes four more missing bands than normally allowed. However, in this specific case, it is felt that use of the technique is justified as the high frequency spectral shape is observed to fall off regularly at 2 dB per one-third octave.

3.2 BANDSHARING OF TONES

All calculations of PNLT included testing for the presence of bandsharing, and adjustment in accordance with the procedures defined in FAR 36, Appendix B, Section B 36.2.3.3

3.3 TONE CORRECTIONS TO PNL

The first "As Measured" EPNL data reduction effort (shown in Appendix B) deleted all tone corrections occurring in those one-third octaves below 800 Hz. This was based on the presumption that they represented pseudotones caused by ground reflections. Data are presented in Appendix B for each of the five microphones.

A change in philosophy concerning application of tone corrections (reflecting development of a final position in the ICAO Helicopter Noise Working Group) led to the requirement that tone corrections over the frequency range 50 Hz to 10 kHz should be included in the recommended testing procedure for helicopter noise certification. Thus, a second "As Measured" EPNL data reduction effort (shown in Appendix D) was undertaken including application of tone corrections from 50 Hz to 10 KHz. Data are presented for the centerline-center and sideline microphones.

The decibel differences resulting from these two computational methods are the subject of Section 7.1. Note that the (tone related) delta EPNL values (Appendix B versus Appendix D) were ultimately applied to adjust the position and absorption corrected EPNL data shown in Appendix C, the Appendix C data having been derived from the "As Measured" data of Appendix B, (tone corrections below 800 Hz deleted). It has been determined that final EPNL values acquired using this procedure may vary from zero to two-tenths of a decibel from position and absorption corrected EPNL values derived from "As Measured" data which incorporated tone corrections from 50 Hz to 10 Khz.

3.4 CORRECTED DATA: POSITION AND AIMOSPHERIC ABSORPTION CORRECTIONS

As explained above, two separate sets of "As Measured" data were computed, different only in the way the tone correction was established. The first set of "As Measured" data (tone corrections from 800 Hz to 10 KHz) was used as the basis from which to compute the "Corrected" data. The process of correcting data for position and atmospheric absorption included:

- Adjusting the measured 24 one-third octave SPLs of the PNLTM spectra to the standard acoustical day conditions.
- Adjusting for the change in atmospheric absorption associated with the difference in slant range between the actual and reference position of the helicopter at the time of PNLTM.
- Adjusting for the change in spherical spreading attenuation associated with the difference in slant range between the actual and reference position of the helicopter at the time of PNLTM.
- Adjusting for the change in event duration associated with the difference between the actual and a reference flight path.

The corrected EPNL data for the centerline-center and sideline microphones are shown in Appendix C.

3.5 SPEED CORRECTION

All events where the indicated airspeed deviated from the reference airspeed by more than five knots were corrected using the 10 log (V_T/V_R) relationship to account for the distortion of the event 10 dB down duration time.

3.6 AVERAGING EPNL DATA

The final EPNL value established for each event (for each microphone) is the result of the series of adjustments and corrections set out in Sections 3.0 to 3.5. The EPNL values for the centerline-center and sideline microphone were arithmetically averaged for each event. The three microphone averages were then averaged for each operational mode yielding a single EPNL value.

3.7 OTHER NOISE METRICS

Appendices B and D, containing "As Measured" EPNL also include A-weighted, D-weighted and Overall Sound Pressure Levels as well as the PNL and PNLTM.

4.0 TEST RESULTS

This section presents the average (three microphone average EPNL values) arrived at for each helicopter for takeoff, approach, and level flyover.

4.1 EPNL DATA

Table 4.1.1 summarizes the results of the test. Helicopter weight (in pounds) is also shown.

4.2 REGRESSION ANALYSIS: EPNL VERSUS WEIGHT

Figures 4.2.1, 4.2.2, and 4.2.3 present the results of a regression analysis to establish a relationship between helicopter weight and EPNL. The dash/dot lines define the 90 percent confidence limits for individual forecasts of EPNL versus weight (a space wherein there exists a 90 percent confidence that the EPNL-weight coordinates of a newly measured helicopter from the same statistical population of helicopters would plot between those lines). The dashed line represents the 90 percent confidence limit for the regression line itself (that is, there exists a 90 percent confidence that another sample of helicopters from the same statistical population would generate a line of regression falling within the dashed lines).

The correlation coefficients (R) and the coefficients of determination (R^2) along with the equation for the line of regression is shown below for each operational mode. Weight (wt) is expressed in pounds. The coefficient of determination multiplied by 100 describes the percent variation in "Y" attributable to variation in "X."

Takeoff

$R = .872 \quad R^2 = .761$

76.1 percent of EPNL variation is described by variations in helicopter weight. EPNL = 9.14 log (wt.) + 55.52

Approach

$R = .938 \quad R^2 = .879$

87.9 percent of EPNL variation is described by variations in helicopter weight. EPNL = 9.07 log (wt.) + 57.41

Level Flyover

$R = .921 \quad R^2 = .849$

84.9 percent of EPNL variation is described by variations in helicopter weight. EPNL = 9.71 log (wt.) + 52.07.

TABLE 4.1.1

NAFEC EPNL DATA: SUMMARY

Helicopter	Weight/Pounds	EFFECTIVE PERCEIVED NOISE LEVEL (EPNdB)		
		Takeoff	Approach	Level Flyover
SA-330J	15,532	95.4	95.6	91.4
BO-105	5,070	89.1	91.7	88.4
Bell 206-L	4,000	85.9	90.3	85.8
S-61	22,050	95.9	94.0	92.6
S-65	37,000	95.7	99.9	97.1
Bell 212	10,500	91.7	95.7	94.6
H-500C	2,550	85.1	87.7	85.8
SA 341G	3,970	92.5	89.5	86.1

Figure 4.2.1
NAFEC TEST DATA

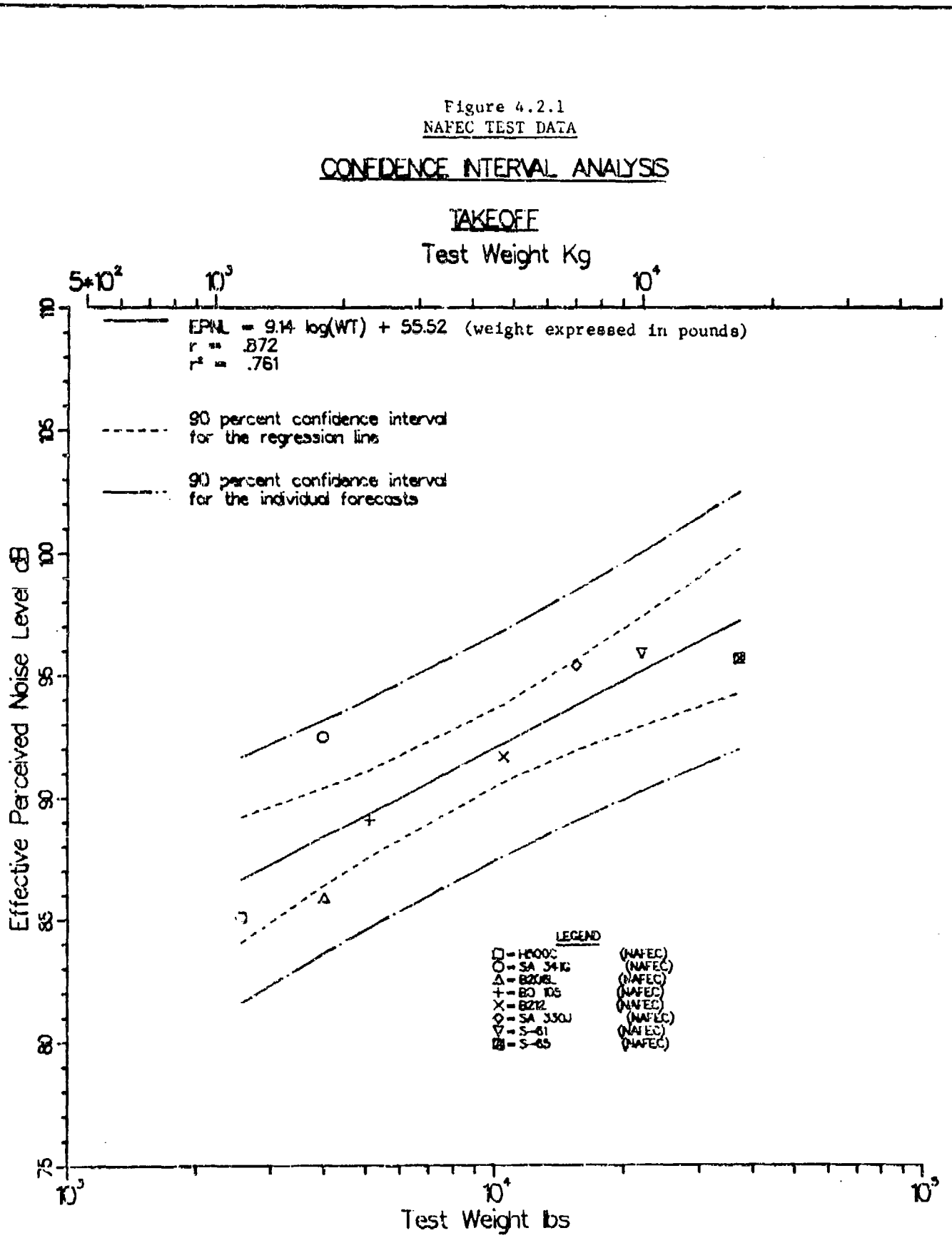


Figure 4.2.2

NAFEC TEST DATA

CONFIDENCE INTERVAL ANALYSIS

APPROACH

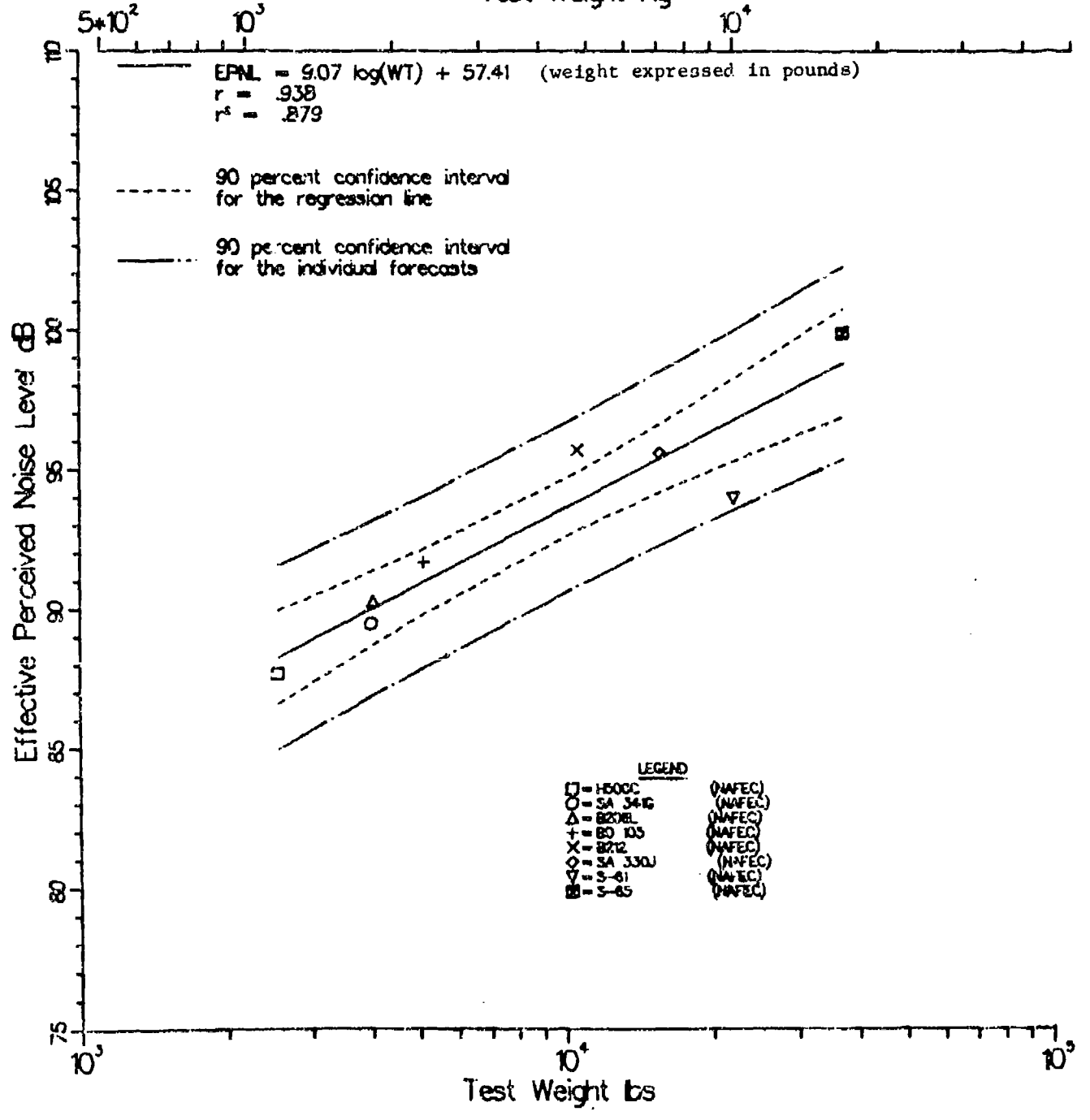
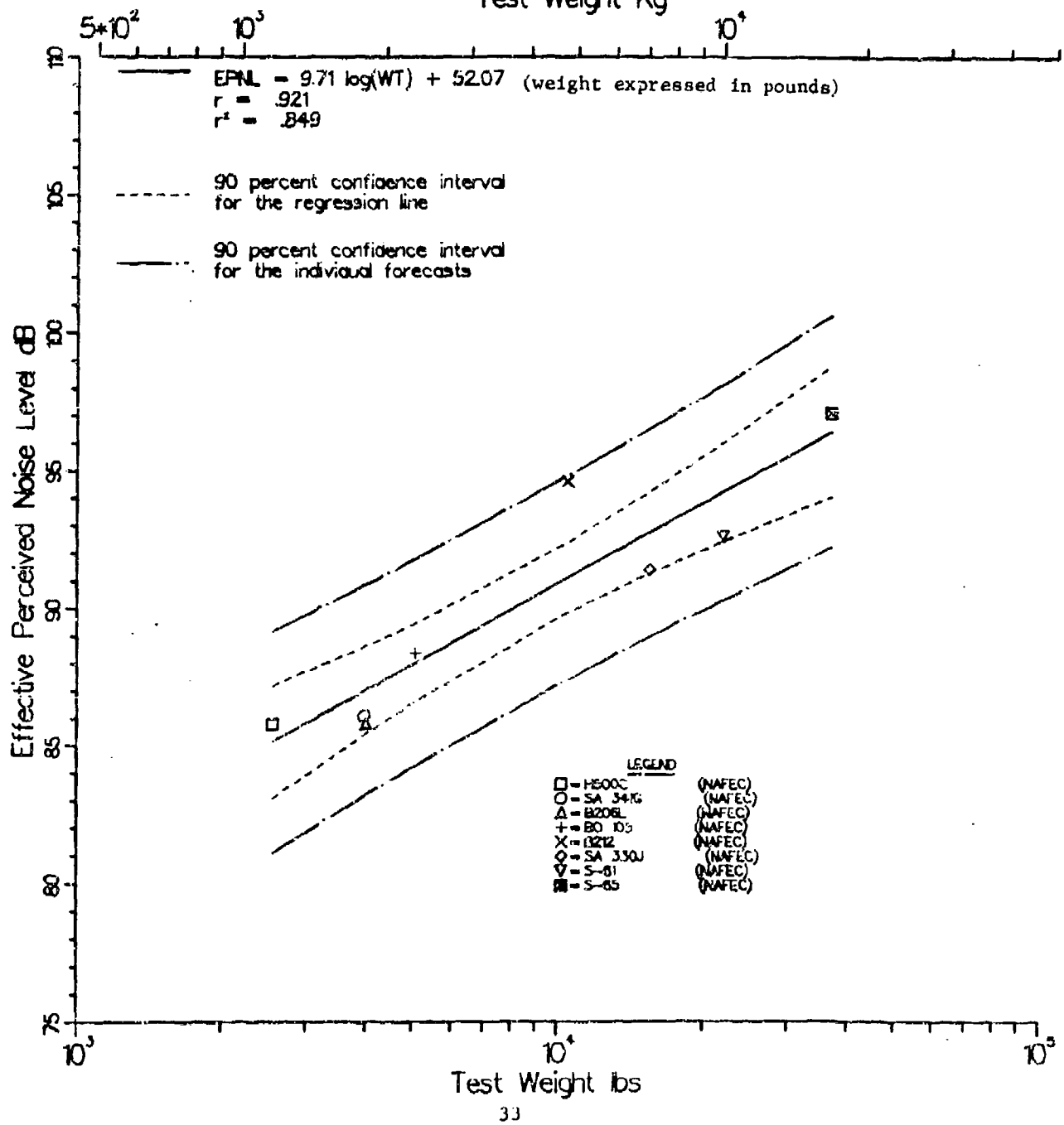


Figure 4.2.3

NAFEC TEST DATA

CONFIDENCE INTERVAL ANALYSIS

LEVEL FLYOVER



5.0 GROUPING OF NAFEC TEST RESULTS WITH OTHER DATA

In order to establish an accurate relationship between rotorcraft weight and EPNL, it is necessary to assure that all data have been acquired using a common base of methodology.

Data attained by the ICAO, the Helicopter Association of America (HAA), and the FAA (during the development of a standard measurement procedure and noise/weight relationship) have been acquired using a variety of methodologies for data reduction, and data presentation as shown below.

1. Variation in the application of tone corrections: 50Hz-10 KHz; 500Hz-10 KHz; 800Hz-10 KHz.

2. Variation or non-definition of speed correction procedures: speed trial curves; 10 log V_T/V_R.

3. Variation in application of speed corrections: all data versus only data outside test speed deviation window.

4. Variation in application of position corrections: all data versus only data outside position deviation window.

5. Variation in method of position and absorption corrections; integrated method versus INLTM only.

6. Variation in ground surface characteristics below microphone (usually undefined).

7. Variation in deployment of microphone: measurements conducted using only one or no sideline microphones.

8. Variation in test weight for the same helicopter.

9. Variation in reference takeoff profiles for the same helicopter (usually undefined).

10. Vague or poorly defined helicopter identity (sometimes unclear whether the model is the original or a modification; in the case of military rotorcraft, it is unclear whether it is representative of the commercial version).

11. Variation in size of measurement sample (sample size rarely defined).

12. Failure to observe accepted analytical methods, especially with respect to regression analysis.

13. Failure to track rotorcraft.

14. Failure to conduct atmospheric absorption or position corrections.

15. Variation in use of the "no correction" temperature and relative humidity test window.

16. Variation in policy regarding detection and deletion of pseduotones (i.e., as in 1 above) in computation of PNLTM.

5.1 OTHER DATA

In an attempt to clear up some of the confusion, delegates to the December 1978 ICAO Helicopter meeting in Tokyo developed "Working Paper No. 25," (WP-25) which summarized the most consistent measurement data. Data were acquired in accordance with "proposed testing procedures." WP-25 also incorporated a +1 dB adjustment to all measurement data which excluded tone corrections below 500 Hz or 800 Hz.

Unfortunately, the recommended testing procedures are rather loosely structured giving rise to many of the sources of variation listed above. Nevertheless, WP-25 represents the most consistent group of data available, and provides the basis for the following aggregate regression analysis.

Refinements of WP-25 data (not including the preliminary NAFEC data) include use of the tone correction adjustment factors developed in Section 7.1 of this paper for all data which excluded tone corrections below 500 or 800 Hz. Although ground surface conditions are unknown, Section 7.1 data provides a good estimate of low frequency tone influence on EPNL.

The NAFEC data have been presented in Section 4.0. French, German, Russian, Italian, British, and Dulles data are shown in Table 5.1.1. The Boeing Vertol CH-47 has been deleted from the Table 5.1.1 data. The CH-47 is considered an "outlier," a statistical term to indicate a data point which can be considered (with a high probability) to come from a separate "universe" of points. The CH-47 data have been plotted and analyzed with other available data in the Addendum to the Preliminary Report issued on September 8, 1978. There it was shown that the CH-47 plotted well outside the Level Flyover 90 percent confidence interval and barely inside the Approach 90 percent confidence interval. There exists a 90 percent probability

that the CH-47 is not a member of the population of points being analyzed. Expressed in other words, the CH-47 does not follow the EPNL versus weight trend observed for other helicopters. This statistical disqualification is consistent with an appraisal of the CH-47 noise source technology/weight relationship. The CH-47 is observed to decrease in noise emission as the weight has increased from the CH-47A through the CH-47C. This phenomenon is related to the decrease of fore-aft rotor vortex interaction through increased separation of the rotor planes.

5.2 AGGREGATE REGRESSION ANALYSIS: EPNL VERSUS WEIGHT

The regression analysis presented in this section sets out the observed dependence of EPNL on rotorcraft weight. The following data grouping scenarios have been analyzed:

Scenario

1. NAFEC Test data only (shown in Section 4 of this report)
2. Data Set 2 only.
3. NAFEC (+) Data Set 2.
4. NAFEC (+) Set 2 (-) Set 2 Repeats.
5. NAFEC (+) Set 2 (-) NAFEC Repeats.

It is noted that scenario 3 lumps all data, essentially double counting the three helicopters that have been repeated in the NAFEC and Set 2 data. The repeat of a given helicopter type at a specific weight tends to prejudice the EPNL value which has been statistically computed as representative of the population of helicopters at that weight. Averaging the two measurements of the same helicopter was considered an appropriate alternative, however, weight disparity (2-5%) and modification uncertainties discouraged this approach. Therefore, scenarios were analyzed with the Data Set 2 repeats removed in one case (scenario 4) and the NAFEC repeats removed in the other (scenario 5).

Scenarios 4 and 5 provide the most appropriate analysis for use in describing the EPNL weight relationship. These scenarios avoid the double counting problem and employ as large a sample size as possible resulting in a reduced 90 percent confidence interval for the regression line as well as for the individual forecasts.

Table 5.2.1 provides a summary of the correlation coefficients (R) and coefficients of determination (R^2) for the various scenarios. The best EPNL-weight (in pounds) relationships found in scenarios 4 and 5 are presented below:

TAKEOFF: Scenario 5

$R = .908$ $R^2 = .825$
82.5% of EPNL variation is described by variations in helicopter weight. EPNL = 10.58 log (wt.) + 50.21

APPROACH: Scenario 4
$R = .931$ R2 = .867
86.7% of the EPNL variation is described by variations in helicopter weight. EPNL = 10.04 log (wt.) + 54.62

LEVEL FLYOVER: Scenario 4

$R = .879$ $R^2 = .773$
77.3% of the EPNL variation is described by variations in the helicopter weight. EPNL = 10.19 log (wt.) + 50.83

The regression line can be converted to a function of weight expressed in kilograms by adding 3.42 to the Y intercept. These three regression lines can be considered the most creditable basis from which to define the relationship between helicopter weight and EPNL.

TABLE 5.1.1

HELICOPTER NOISE DATA FROM OTHER SOURCES
("DATA SET 2")

Country	Aircraft Type	Test Weight/Pounds	Effective Perceived Noise Level(EPNdB) Approach	Takeoff	Flyover
France	AS 350	4,180	91.2	89.2	87.2
	SA 342	4,180	95.5		88.2
	SA 342	3,520		89.8	
	SA 360	6,600		92.4	
	SA 365	7,480	94	89.4	
	SA 330J	16,280	96.1	97.8	93.6
	SA 321F	25,300	98.6	98.4	92
Italy	A 109	5,390	93.0*		90.4*
U.S.S.R.	MI 6A	88,440	107.4*		103.4*
U.S.S.R.	MI 2	7,755	96.1*		89.5*
U.S.S.R.	MI 8	25,212	99.6*		97.3*
U.K.	WG 13	9,350	96.9*	91.6	97.7*
Germany	BO 105	5,060	91.1	88.4	89.6
U.S. Dulles	Bell 47G	2,728	89.6*		90.3*
U.S. Dulles	H 300C	1,804			80.6*
U.S. Dulles	S 64	42,812	98.6*		96.7*

* Denotes adjustment for inclusion of tone corrections below 800 Hz:
+ 0.6 dB on Approach
+ 0.7 dB on Takeoff
+ 0.7 dB on Level Flyover

TABLE 5.2.1

Regression Analysis
Correlation Coefficients (R) and
Coefficients of Determination (R^2)

		TAKEOFF		APPROACH		LEVEL FLYOVER	
No.	Scenario	R	R^2	R	R^2	R	R^2
1	NAFEC Test Data	.872	.761	.938	.879	.921	.849
2	Data Set 2	.939	.882	.917	.841	.871	.759
3	NAFEC Test Data + Data Set 2	.877	.769	.907	.823	.880	.775
4	NAFEC Test Data + Data Set 2 (-) Data Set 2 Repeats	.833	.780	.931	.867	.879	.773
5	NAFEC Test Data (+) Data Set 2 (-) NAFEC Repeats	.908	.825	.902	.814	.877	.769

The individual confidence interval and regression analysis are presented in Figures 5.2.1 through 5.2.12.

Figure 5.2.1

DATA SET 2

CONFIDENCE INTERVAL ANALYSIS

TAKEOFF

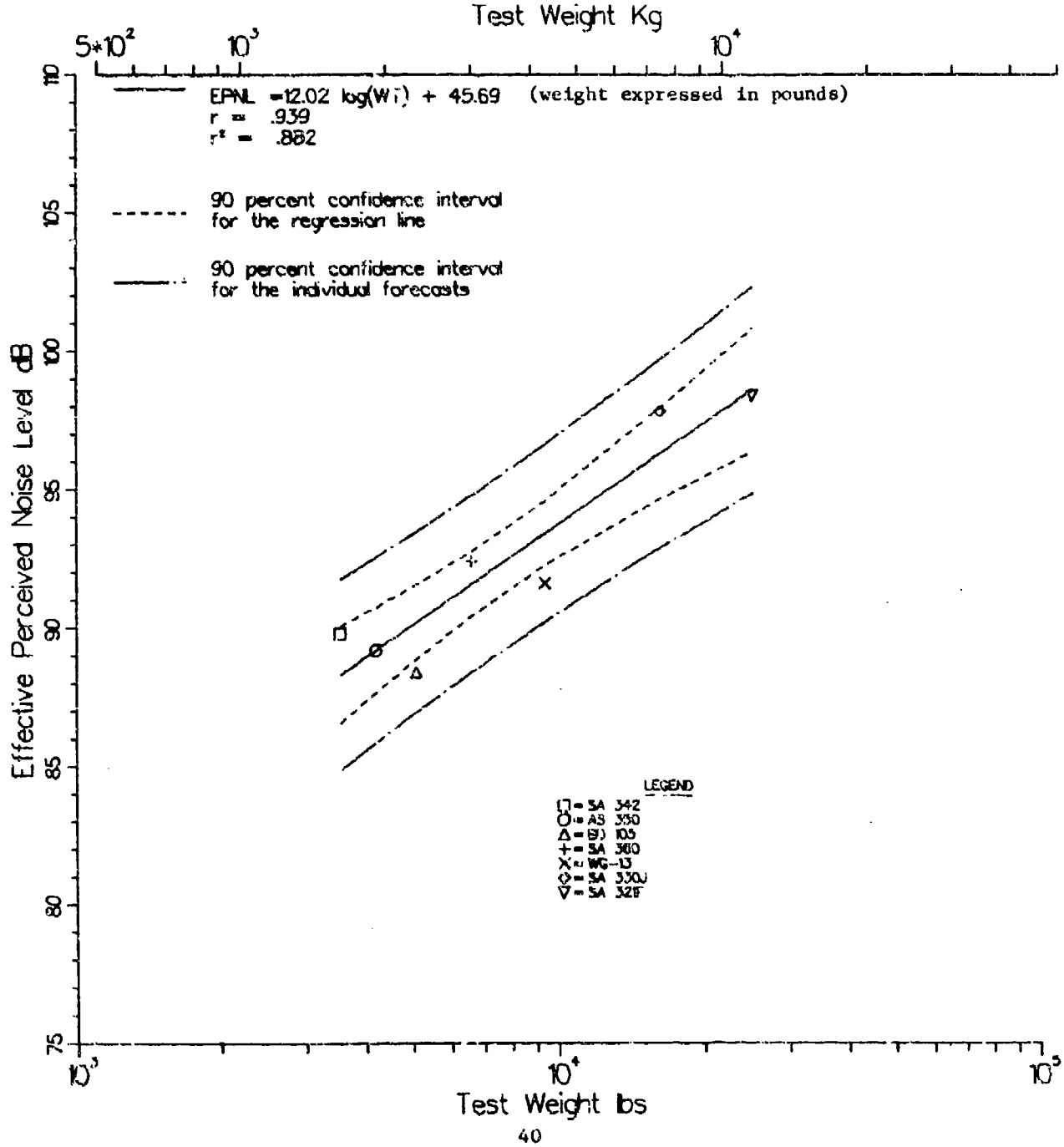


Figure 5.2.2

NAFEC TEST DATA (+) DATA SET 2

CONFIDENCE INTERVAL ANALYSIS

TAKEOFF

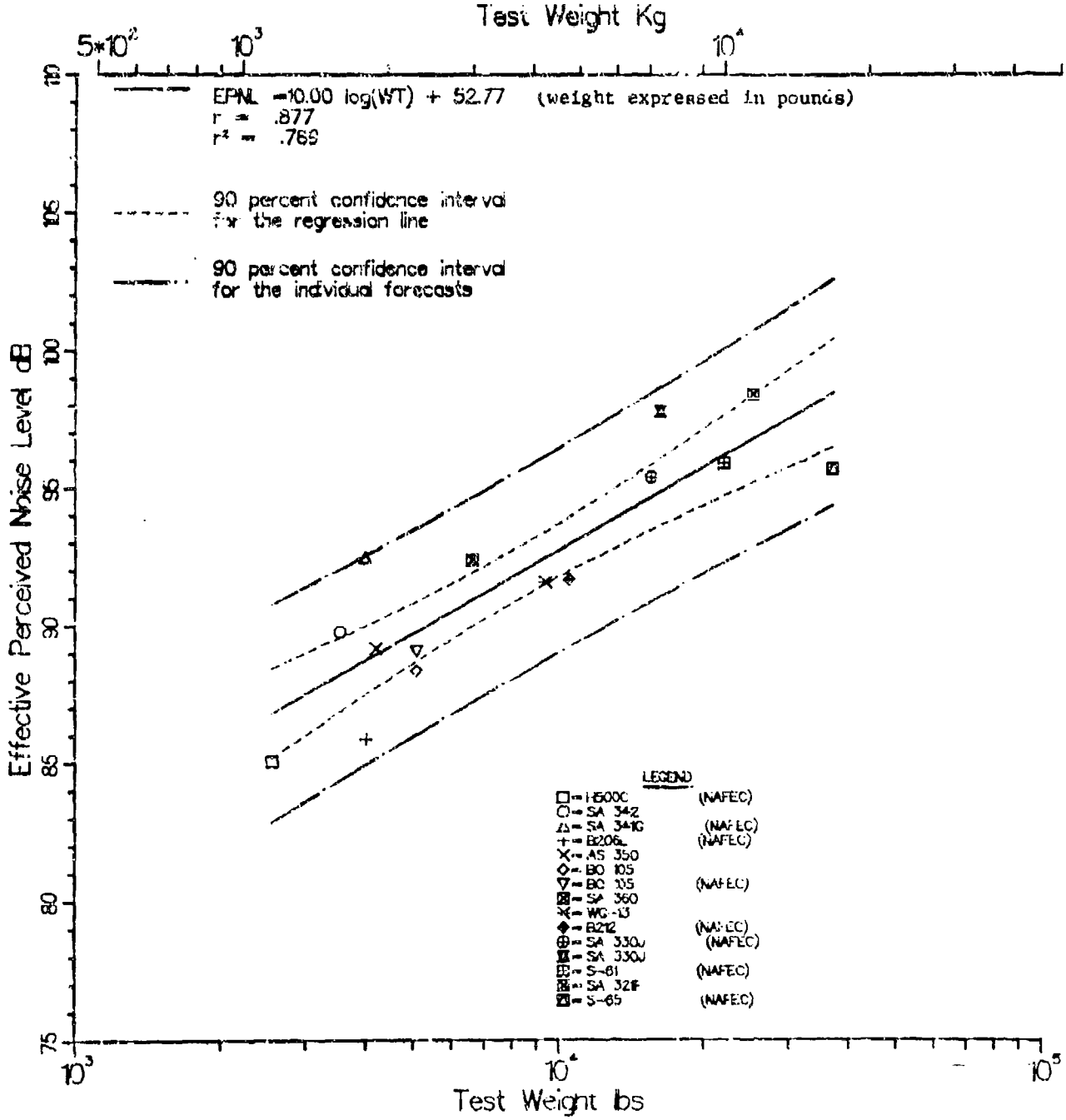


Figure 5.2.3

NAFEC TEST DATA (+) DATA SET 2 (-) DATA SET 2 REPEATS

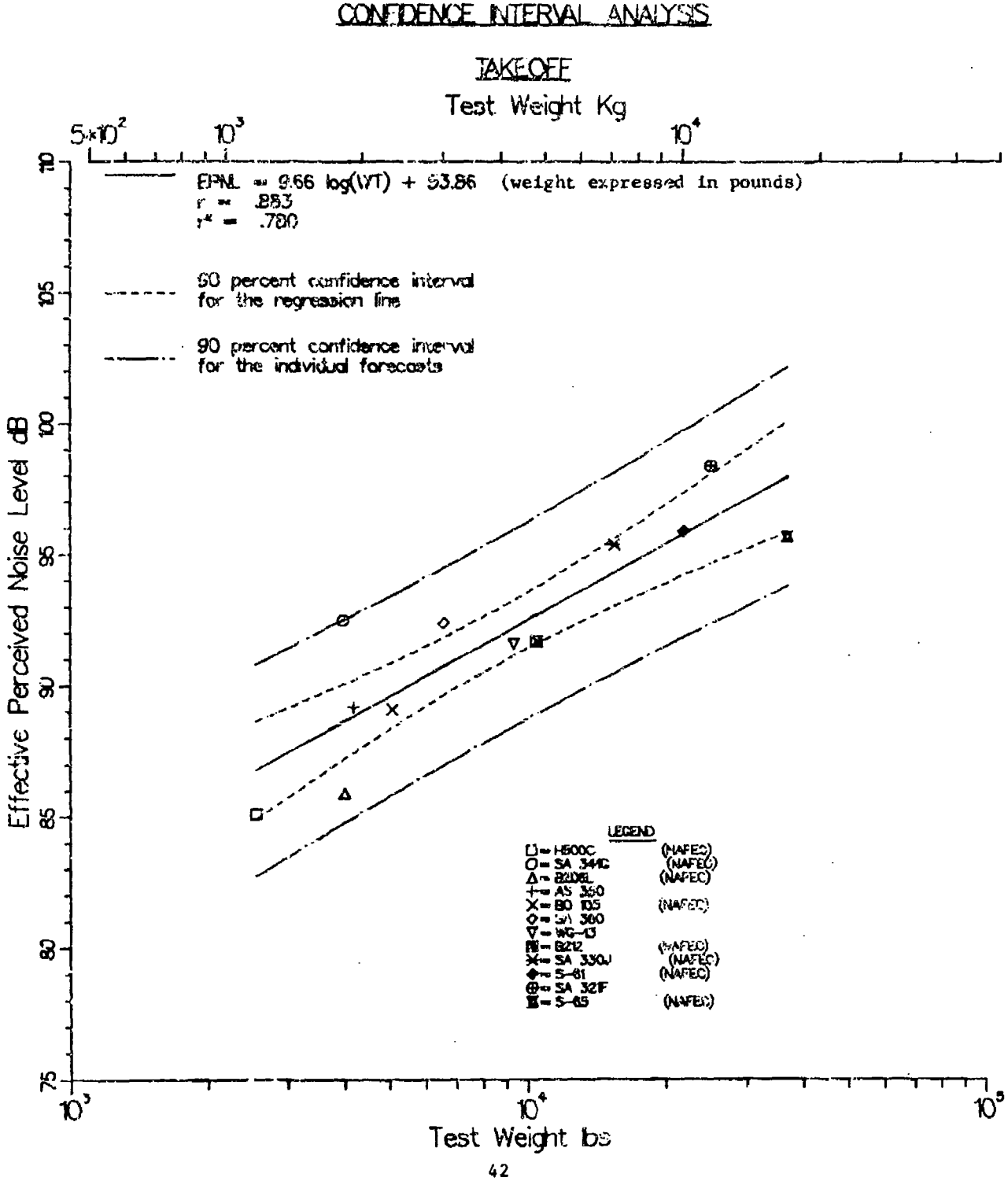
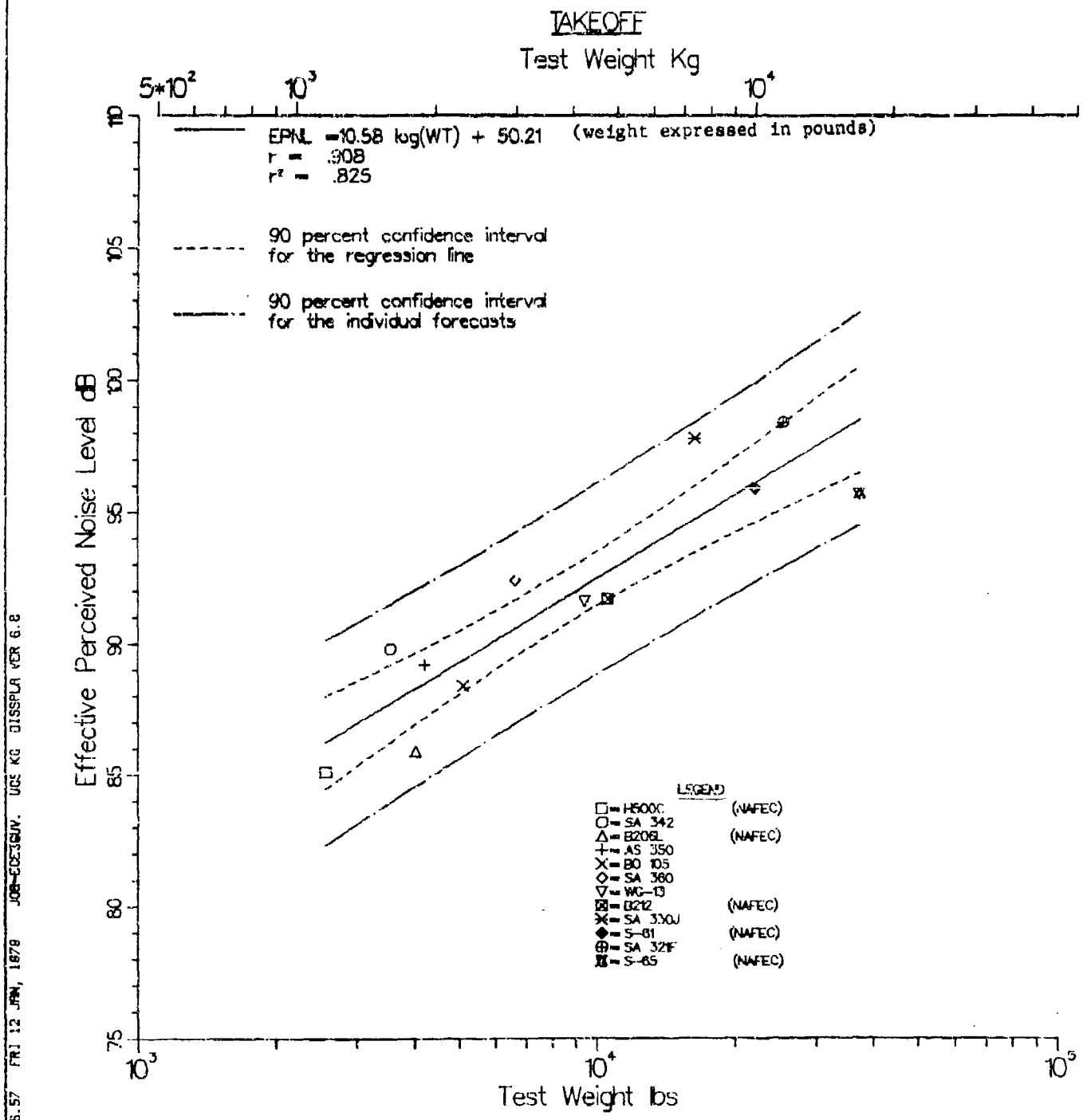


Figure 5.2.4

NAFEC TEST DATA (+) DATA SET 2 (-) NAFEC REPLATS

CONFIDENCE INTERVAL ANALYSIS



LOT 1 12.26.57 FRI 12 JAN, 1979 JOB=EDESIGN. USE KG DISSPLA VER 6.8

Figure 5.2.5

DATA SET 2

CONFIDENCE INTERVAL ANALYSIS

APPROACH

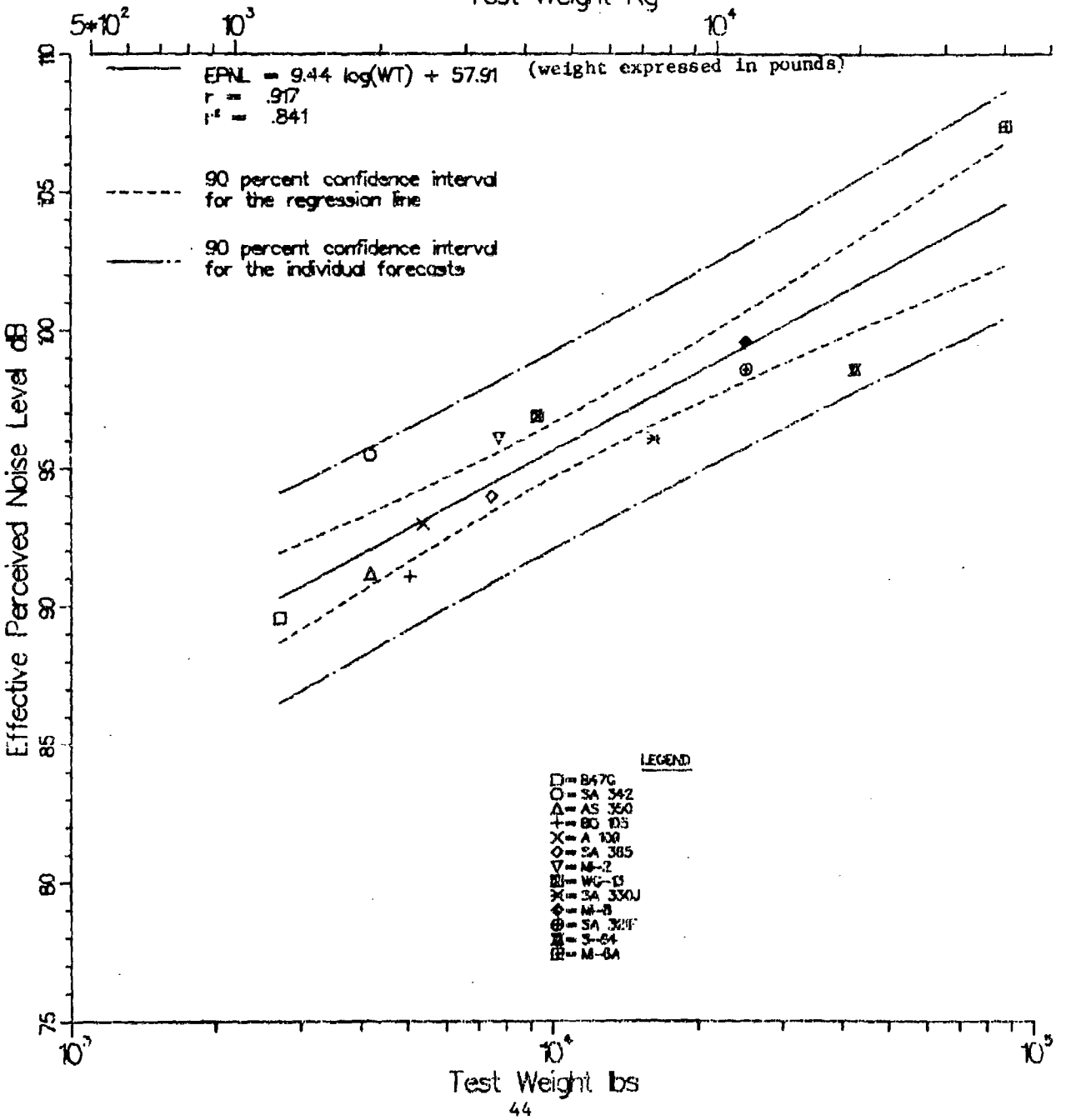


Figure 5.2.6

NAFEC TEST DATA (+) DATA SET 2.

CONFIDENCE INTERVAL ANALYSIS

APPROACH

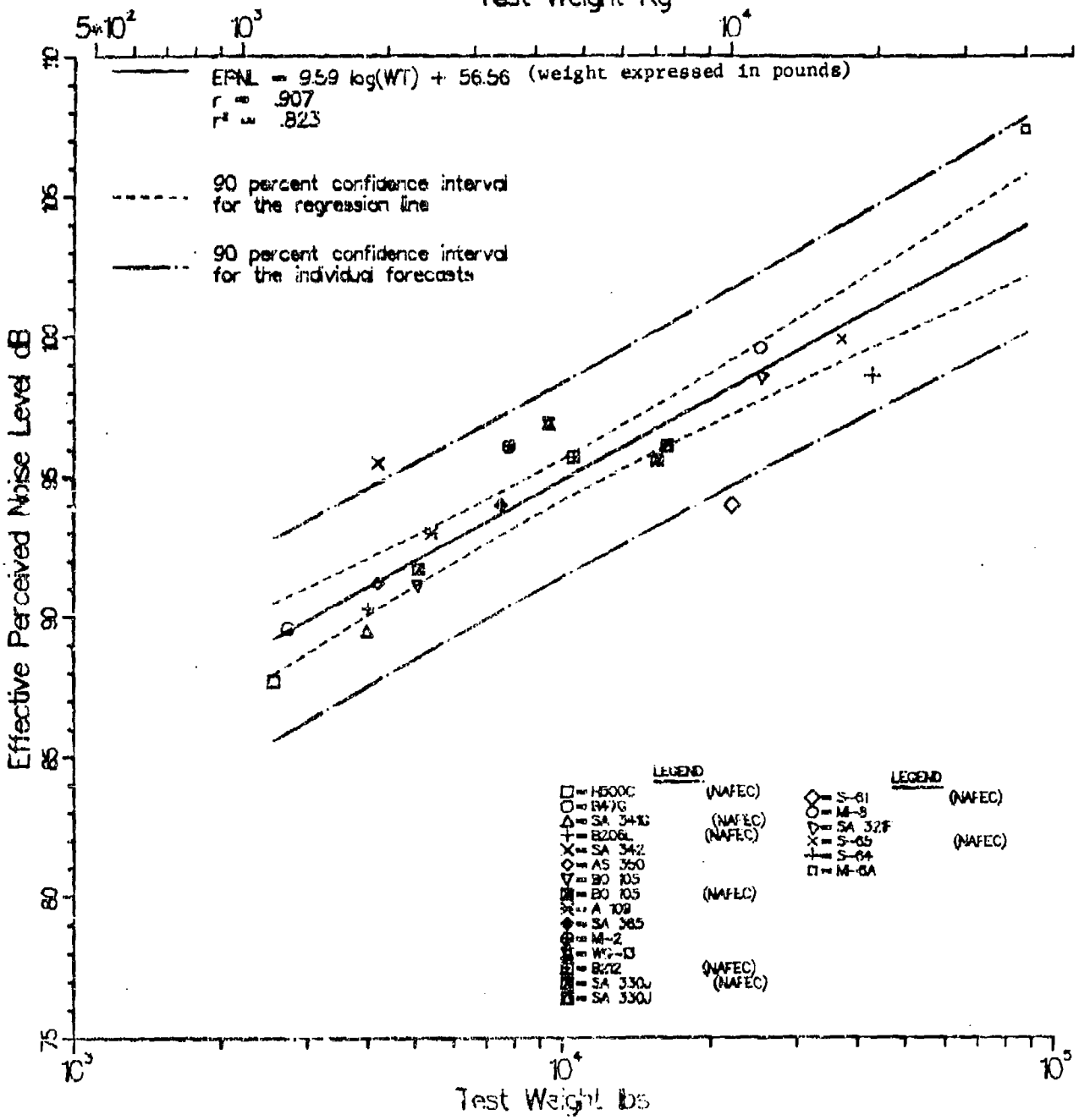


Figure 5.2.7

NAFEC TEST DATA (+) DATA SET 2 (-) DATA SET 2 REPLATES

CONFIDENCE INTERVAL ANALYSIS

APPROACH

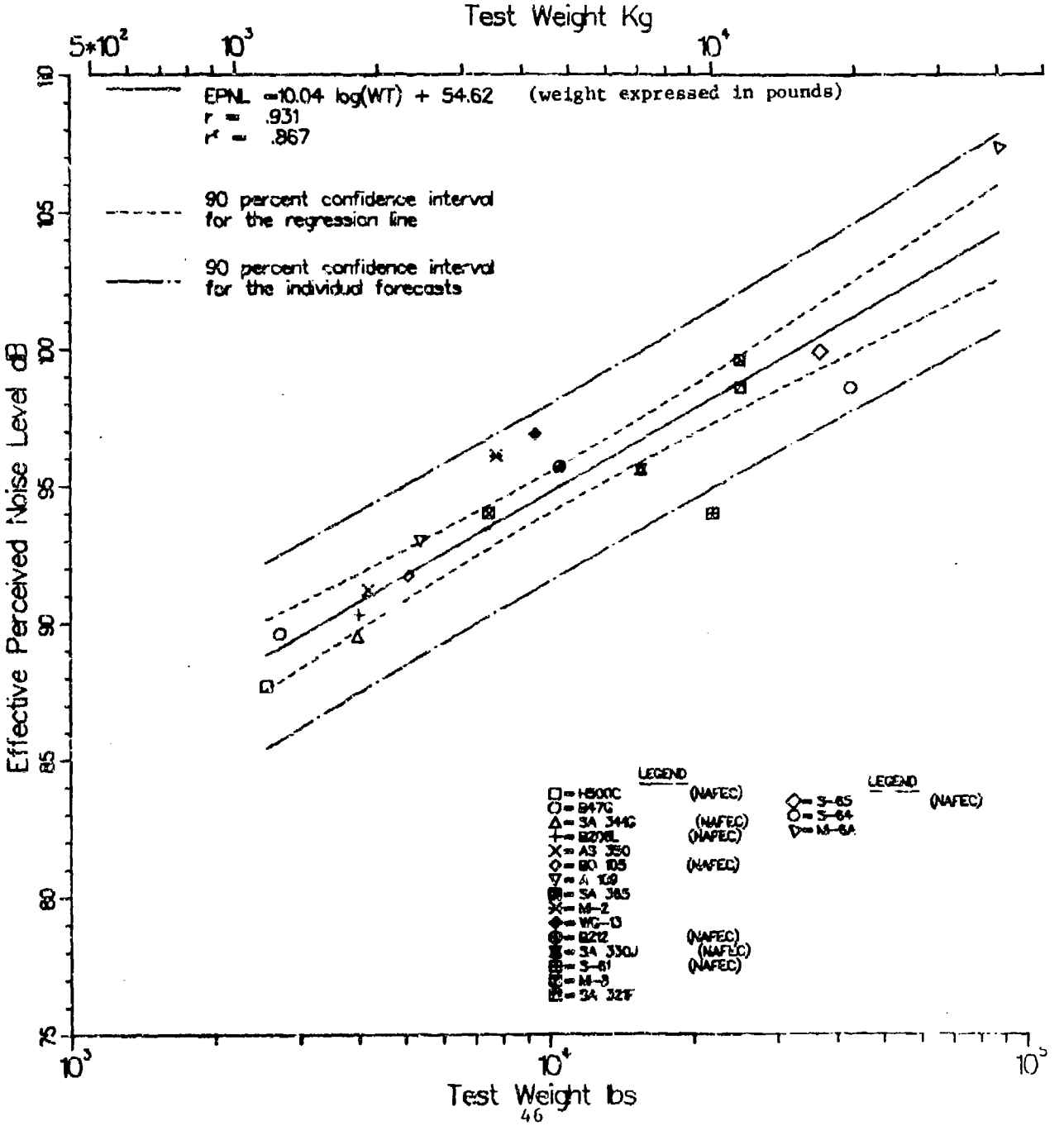


Figure 5.2.8

NAFEC TEST DATA (+) DATA SET 2 (-) NAFEC REPEATS

CONFIDENCE INTERVAL ANALYSIS

APPROACH

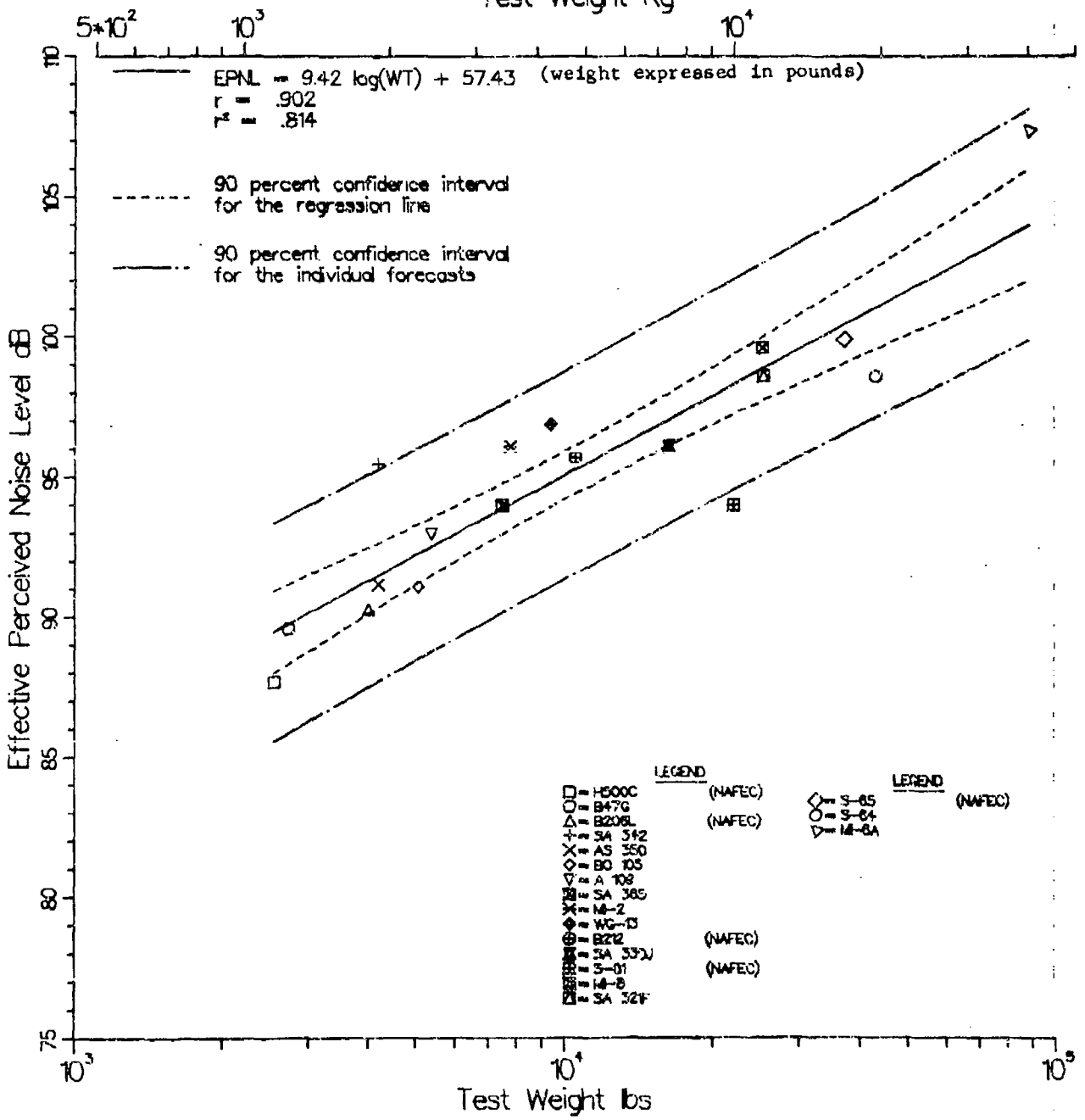


Figure 5.2.9
DATA SET 2

CONFIDENCE INTERVAL ANALYSIS

LEVEL FLYOVER

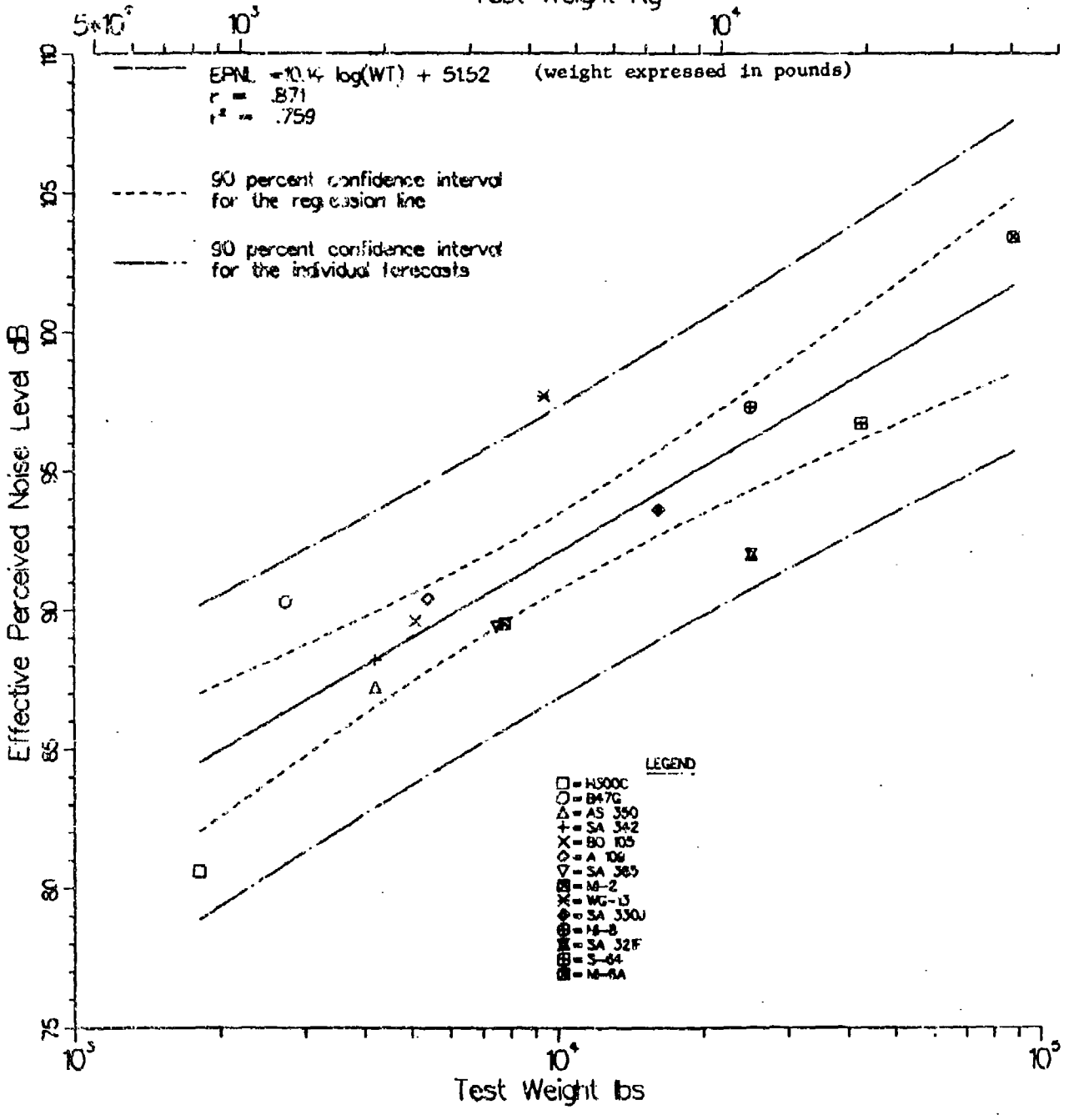


Figure 5.2.10

NAFEC TEST DATA (+) DATA SET 2

CONFIDENCE INTERVAL ANALYSIS

LEVEL FLYOVER

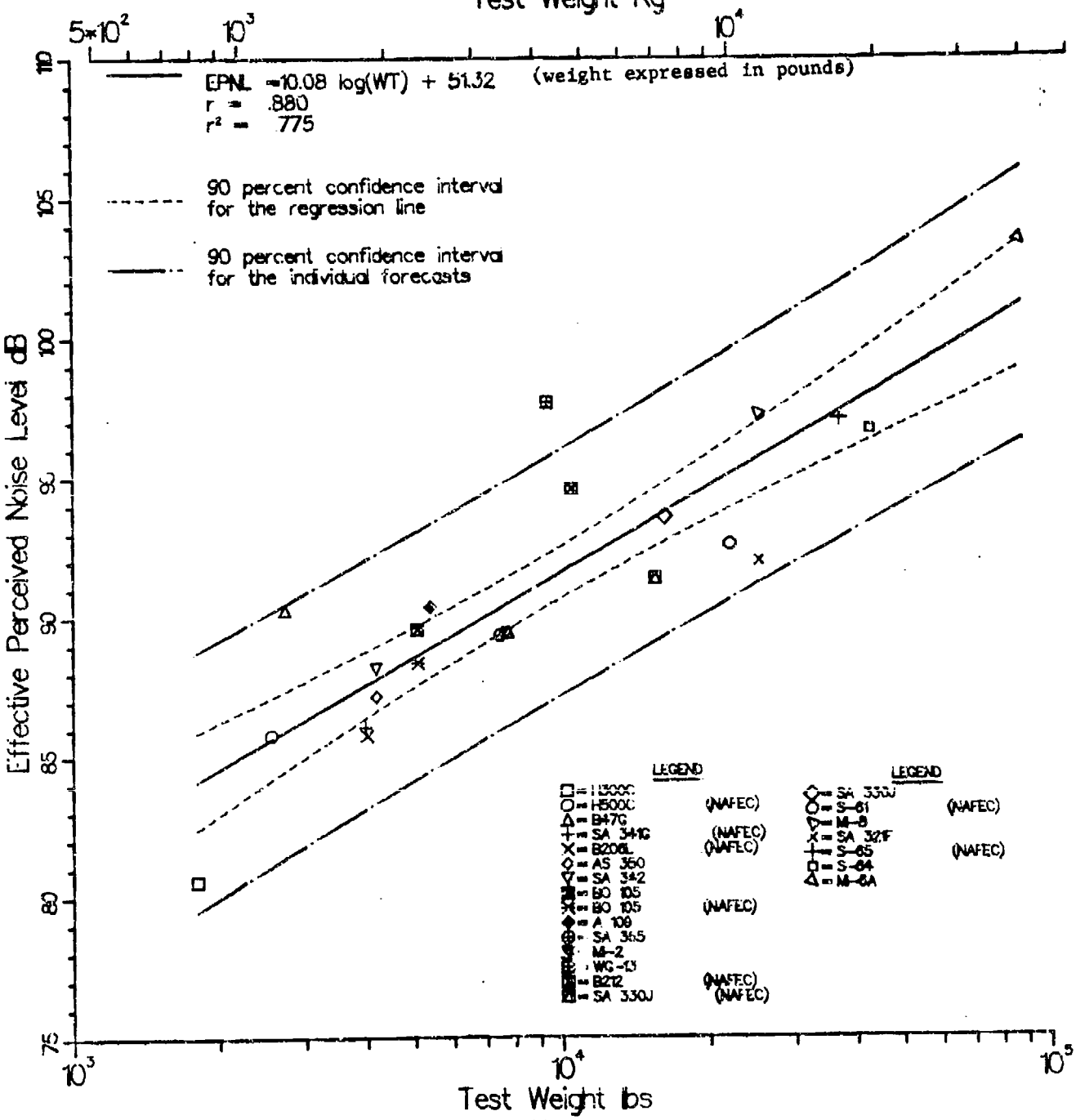


Figure 5.2.11

NAFEC TEST DATA (+) DATA SET 2 (-) DATA SET 2 REPEATES

CONFIDENCE INTERVAL ANALYSIS

LEVEL FLYOVER

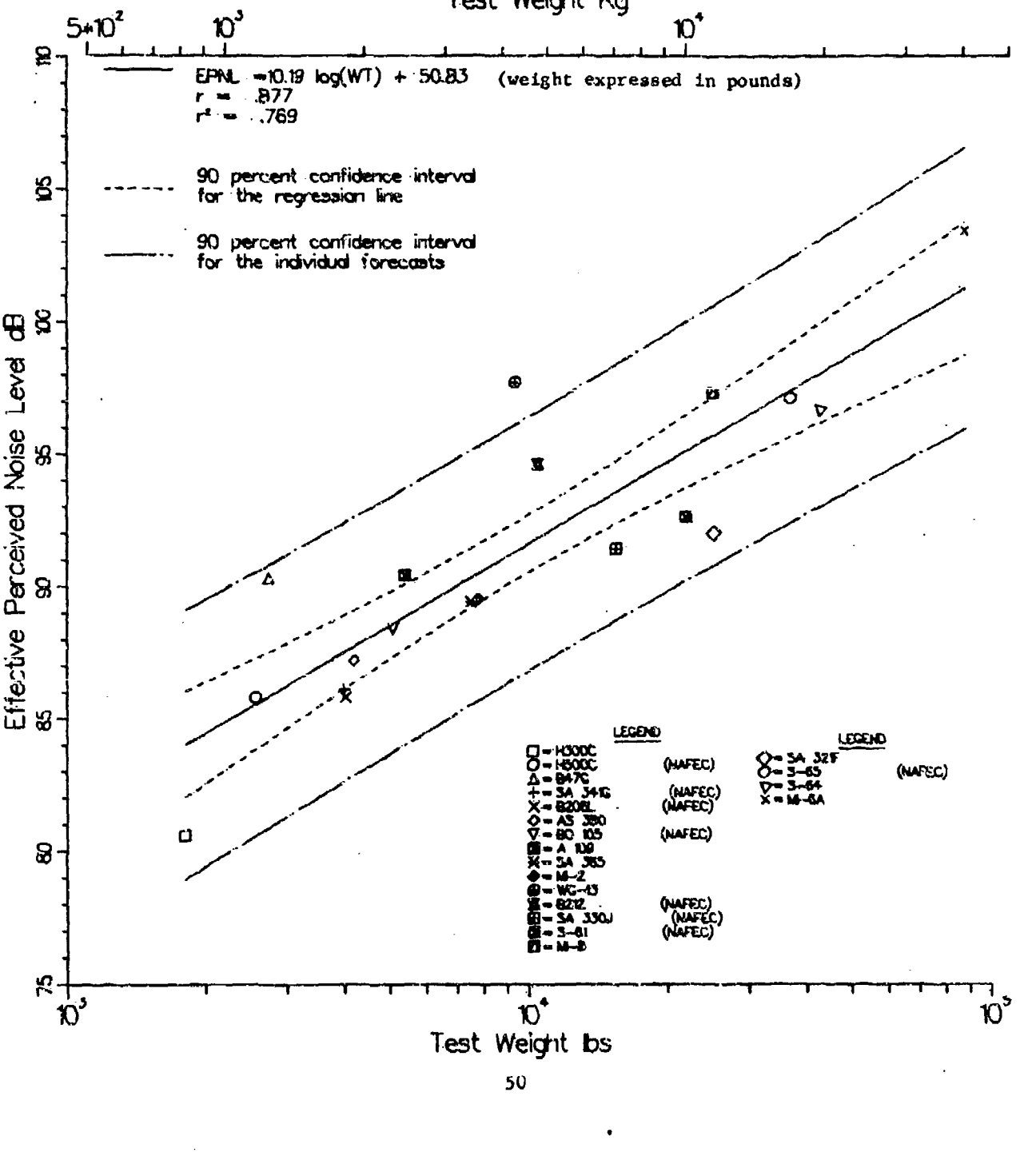
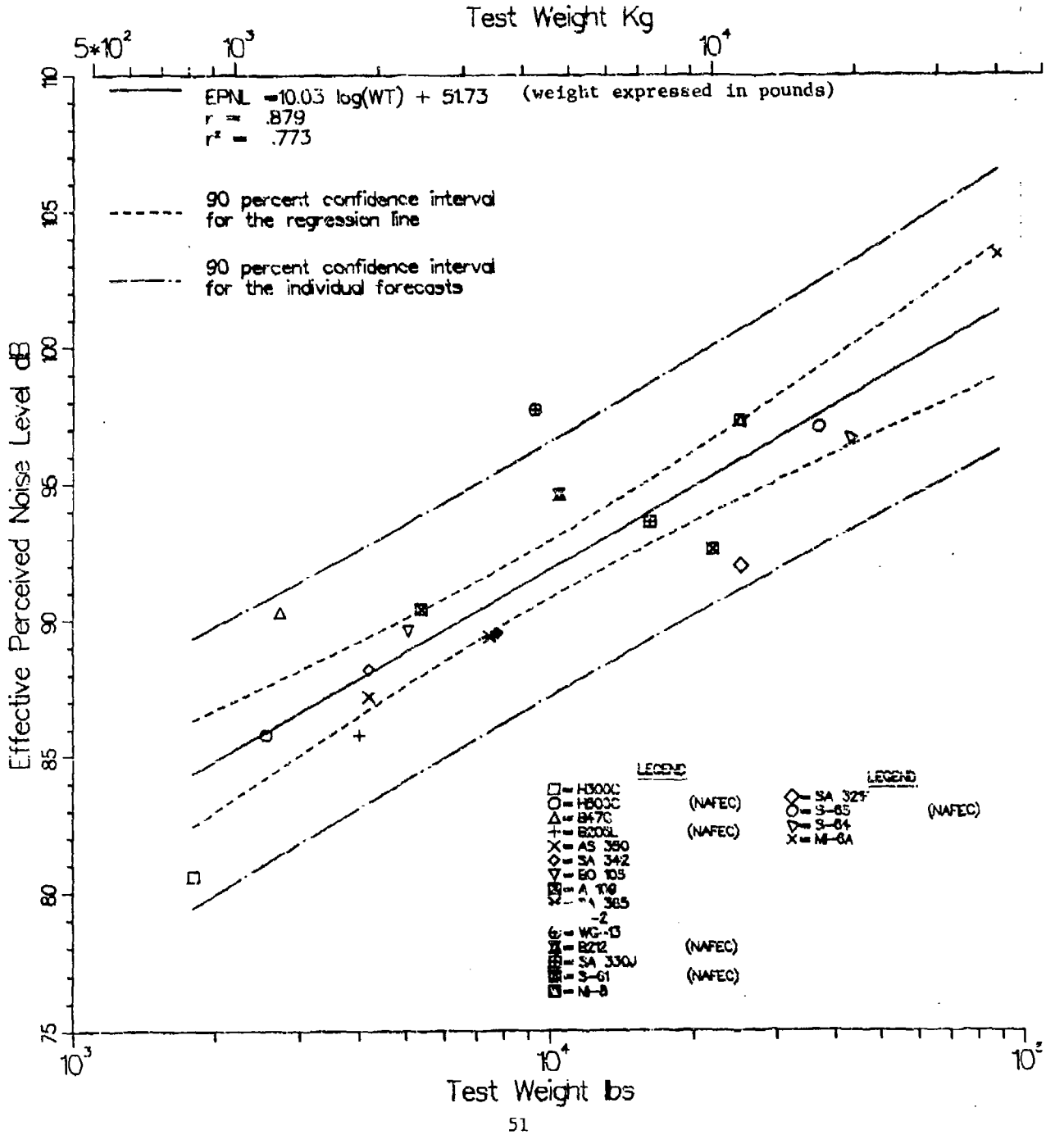


Figure 5.2.12
NAFEC TEST DATA (+) DATA SET 2 (-) NAFEC REPEATS

CONFIDENCE INTERVAL ANALYSIS



5.3 COMPARISON OF REPEATED INDEPENDENT MEASUREMENTS

The following helicopters have been assessed by more than one independent acoustical measurement team:

Helicopter	Measurement Team and Operational Mode
BO-105:	German (T/O), A, LFO), NAFEC (T/O, A, LFO)
SA-330J:	France (T/O, A, LFO), NAFEC (T/O, A, LFO)
SA 341G:	France (A, LFO), NAFEC (T/O, A, LFO)

The table shown below summarizes the EPNL and test weight differentials relative to the NAFEC EPNL measurements and test weights. The NAFEC and German data are in good agreement on the BO-105. The NAFEC data are roughly 2 EPNL lower than the French data on the SA-330J, noting that the NAFEC SA-330J was operating at 4.6 percent less weight. The French SA-342 data varied significantly from the NAFEC data on approach, registering a 6 dB higher EPNL operating at 5.3 percent higher weight. The SA-341G and SA-342 are slightly different models of the same type helicopter (Gazelle). It should be noted that the NAFEC SA-341G plots very close to the line of regression while the French SA-342 lies outside the 90 percent confidence interval for individual forecasts.

Helicopter		EPNL Difference (Re. NAFEC)	Percent Change In Weight (Re. NAFEC)
German BO-105	T/O	-2.4	-0.2
	A	0.6	-0.2
	LFO	+1.2	-0.2
French SA-330J	T/O	+2.4	+4.6
	A	+0.5	+4.6
	LFO	+2.2	+4.6
French SA-341G	T/O	*	*
	A	+6.0	+5.3
	LFO	+2.1	+5.3

* No data available

The SA-341G and SA-342 EPNL disparity of 6 dB is difficult to explain. The differential could possibly be a result of measurement methodology and data processing variations.

The possibility of low engine power or torque on the NAFEC SA-341G has been dismissed as a result of examining cockpit photos which show a 15 to 18 percent torque, appropriate for the 6 degree glide slope. Another possible cause for disparity is noise source acoustical difference between the SA-341G and SA-342. Jane's All The World's Aircraft, 1977-1978 indicates that the SA 342 (J,L) has an "improved fenestra tail rotor." The acoustical implications of this remain unclear.

6.0 FEASIBILITY OF TEST PROCEDURES

One of the principle objectives of the NAFEC test program was to investigate the feasibility of procedures which have been proposed for use in helicopter noise certification. Analysis will be presented in the following sections which examine:

6.1 The ability of test helicopters to maintain a reference 6 degree glide slope during approach.
6.2 The practicality of the microphone array layout with respect to the takeoff rotation point and the resulting acoustical signal-to-noise ratio.
6.3 The ability of helicopters to maintain consistent climb gradients during takeoff.
6.4 The ability of helicopters to adhere to the designated flight track (microphone array centerline).

6.1 APPROACH GLIDE SLOPE ANALYSIS

The ability of the test helicopters to maintain the reference 6 degree approach path within the proposed no correction test window of ± 10 meters has been investigated and the results of the analysis are presented in Figure 6.1.1. The helicopters were using a standard red/white visual approach slope indicator (VASI). The VASI was calibrated each morning with a ground-based theodolite. The closest point of approach (CPA) slant distance from the helicopter to the centerline-center microphone location has been plotted for each approach for each helicopter. The CPA value for the reference path (glide slope) has been identified along with boundaries defining ± 10 meters from the reference path.

Observations include:

1. The military pilots (the S-61 and Bell 212) flew consistently within the test window (± 10 meters).

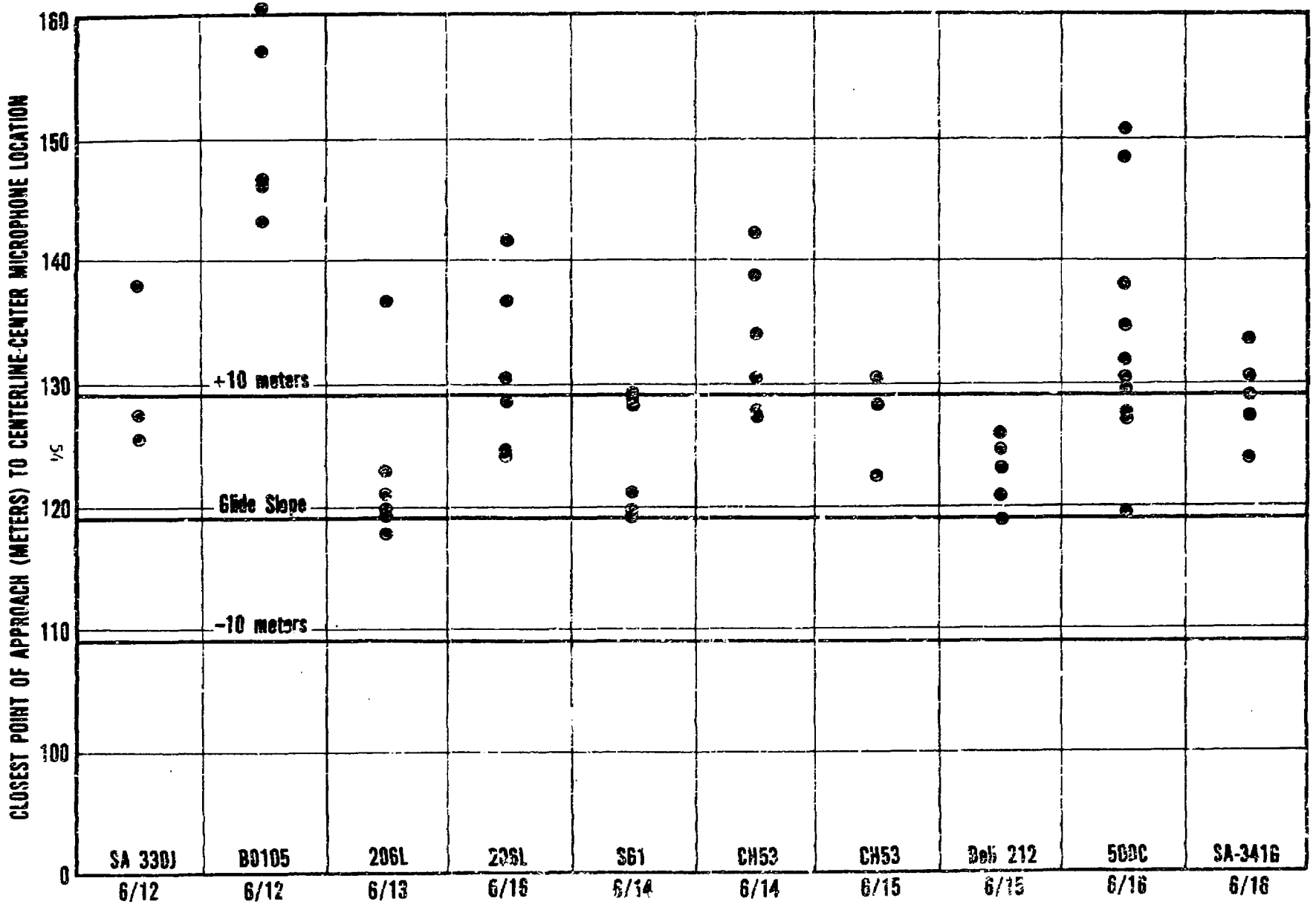
2. Only one of all the approaches conducted was below the glide slope when passing over the centerline-center location.

3. The Bell 206-L was far more accurate on approaches conducted on a windy day (6/13/78) as compared with a calm day (6/14/78).

4. The upper limit (± 10 meters) of the position test window was exceeded in 26 out of 55 (47%) approaches.

FIGURE 6.1.1

APPROACH GLIDE SLOPE ANALYSIS



CONCLUSION

The approach test procedure can be accomplished. However, it is apparent that practice is necessary in order to consistently fly within the established test window.

6.2 TAKEOFF SIGNAL-TO-NOISE RATIO ANALYSIS

The average value of the "As Measured" EPNL has been plotted for approach, takeoff, and level flyover for each helicopter test series for the three centerline microphone locations. These data presented in Figures 6.2.1 through 6.2.10 are primarily intended to provide a means for evaluating the relationship between takeoff rotation point and the signal-to-noise ratio at the microphone locations.

Takeoffs were conducted from east to west. The rotation point was located 1650 feet (503 meters) from the centerline-center microphone location, 1150 feet (350.5 meters) from centerline-east location, and 2150 feet (655.3 meters) from the centerline-west location. The average takeoff noise levels measured at the centerline-west microphone location in all cases exceeded 84 EPNL, that value corresponding to the Hughes 500C. Average levels were (as expected) higher at the centerline-center and centerline-east locations. The signal-to-noise ratio at any of the sites would likely be sufficient to assure acquisition of valid data. It is noted, however, that lower levels occurring for the centerline-west site would probably result in signal-to-noise ratio problems in the higher frequency bands for measurements at corresponding sideline locations. In any case, it is clear that the centerline-center microphone location (approximately 500 meters from rotation) would be an acceptable choice for the centerline microphone for certification purposes.

6.3 ROTOR SPEED ADHERENCE TO REFERENCE CONDITIONS

Examination of the rotor speed data presented in Appendix A reveals:

1. For each of the test helicopters, except the SA 330J (PUMA), and the Bell 206-L, the main rotor speed fell consistently within $\pm$ 1% of the speed defined by the top of the normal operating range (top of the green arc).

2. The Bell 206-L failed to meet the $\pm$ 1% criteria only once (- 2%) during the two days that it was tested.

Figure 6.2.1

SA-330J, 6/12/78

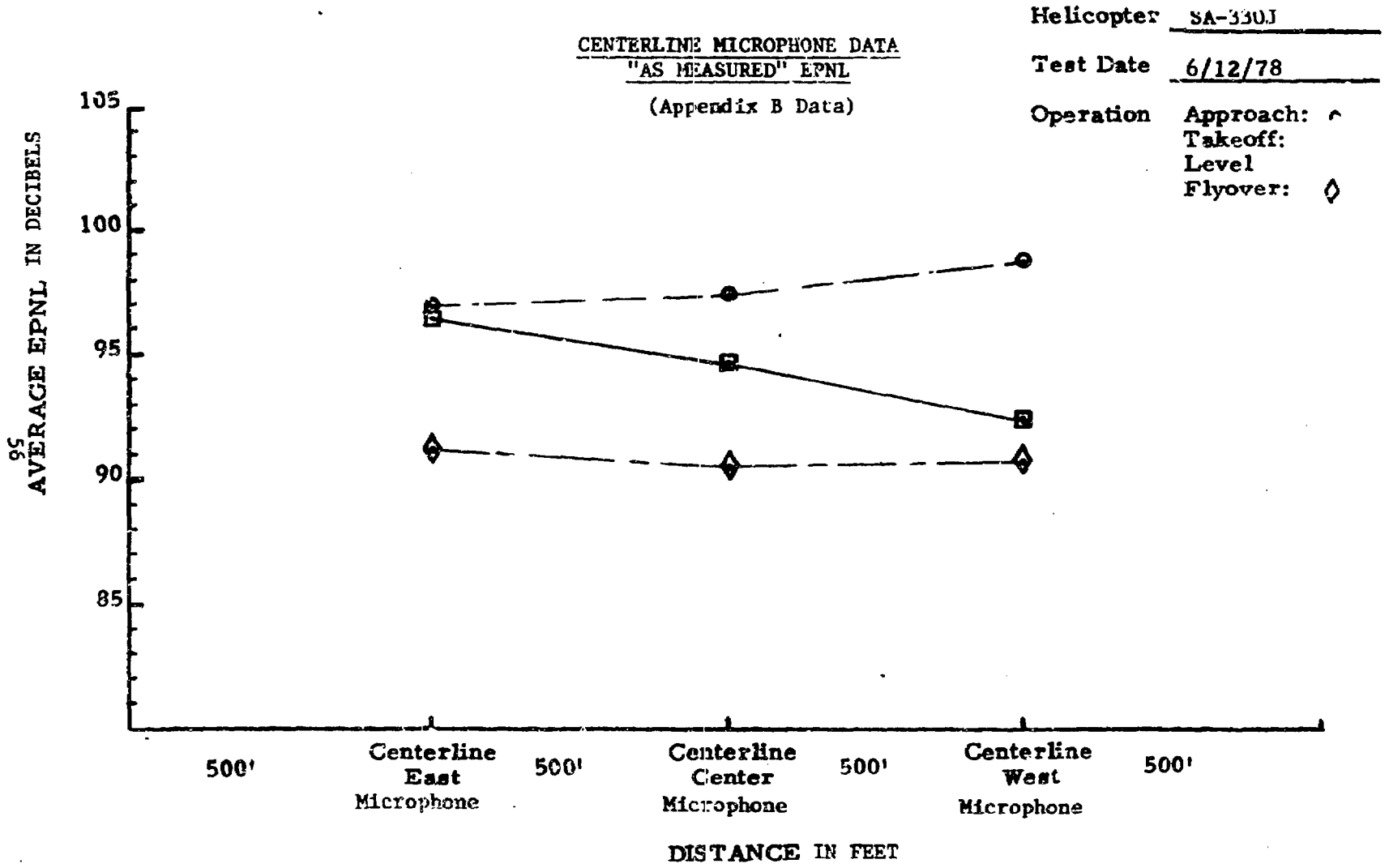


Figure 6.2.2

BO-105, 6/12/78

CENTERLINE MICROPHONE DATA

"AS MEASURED" EPNL

(Appendix B Data)

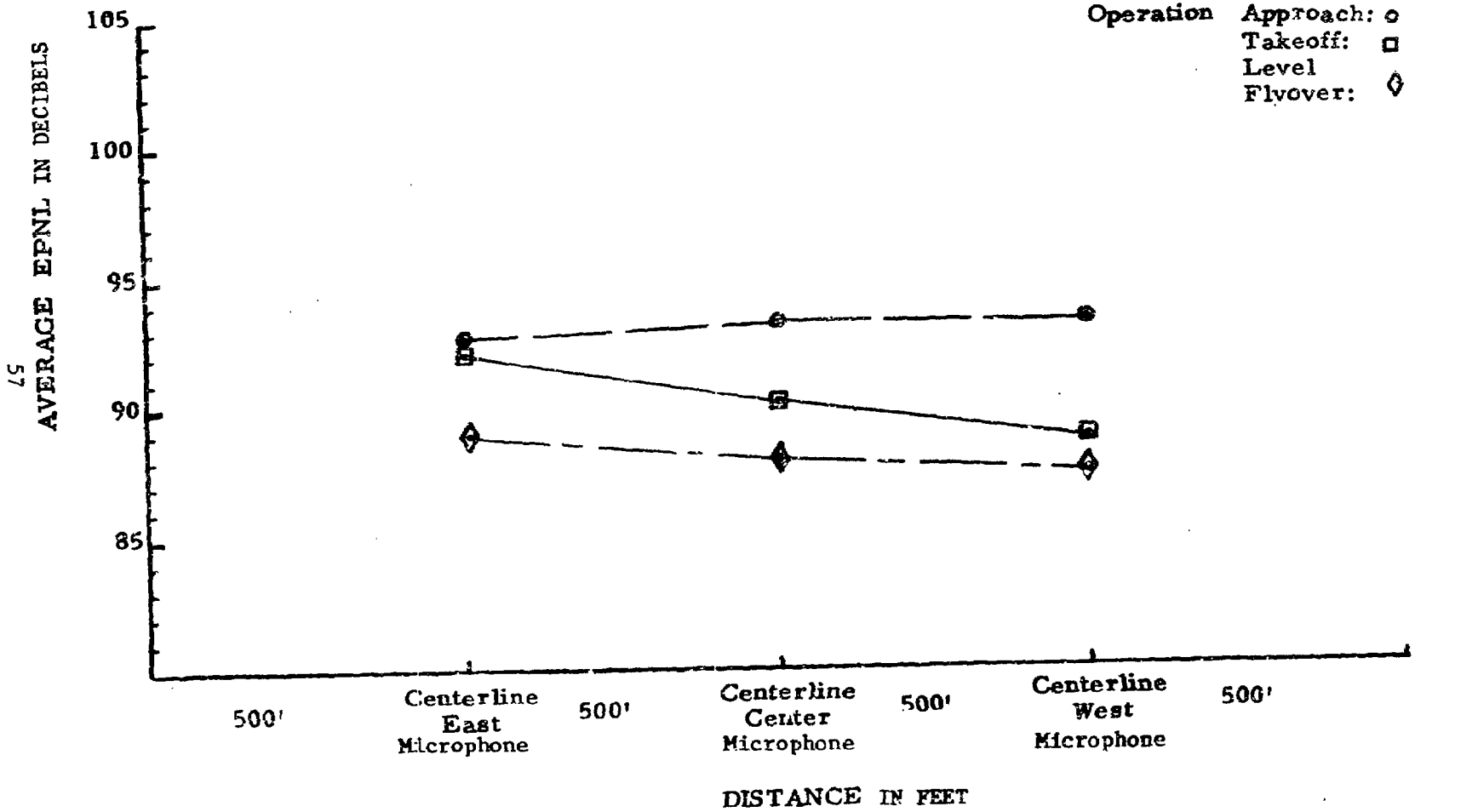


Figure 6.2.3

BELL 206-L, 6/13/78

CENTERLINE MICROPHONE DATA
"AS MEASURED" EPNL

(Appendix B Data)

Helicopter Bell 206L

Test Date 6/13/78

Operation Approach: o
Takeoff: □
Level
Flyover: ◇

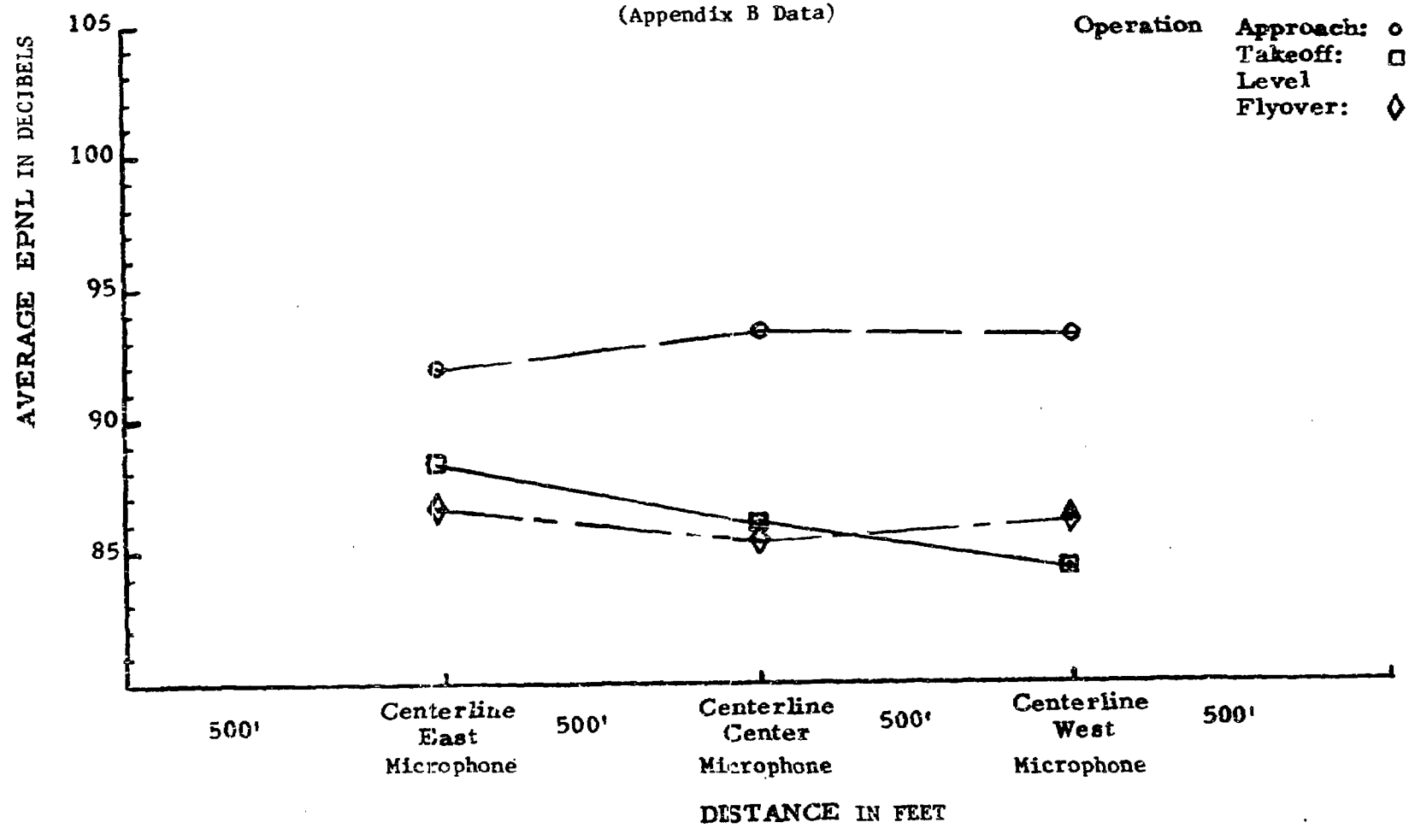


Figure 6.2.4

BELL 206-L, 6/16/78

CENTERLINE MICROPHONE DATA
"AS MEASURED" EPNL

(Appendix B Data)

Helicopter Bell 206L

Test Date 6/16/78

Operation Approach: o
Takeoff: □
Level
Flyover: ◇

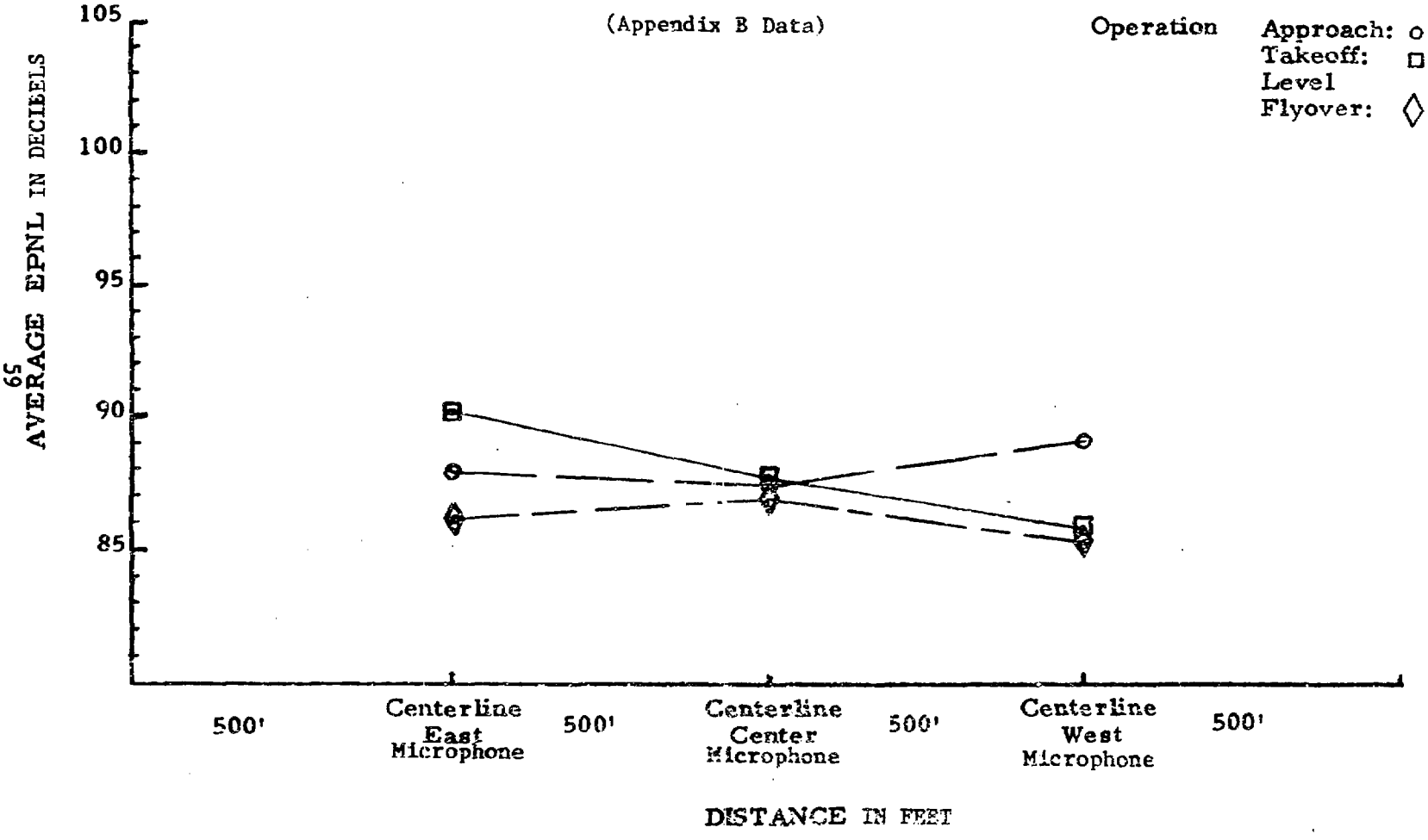


Figure 6.2.5

S-61, 6/14/78

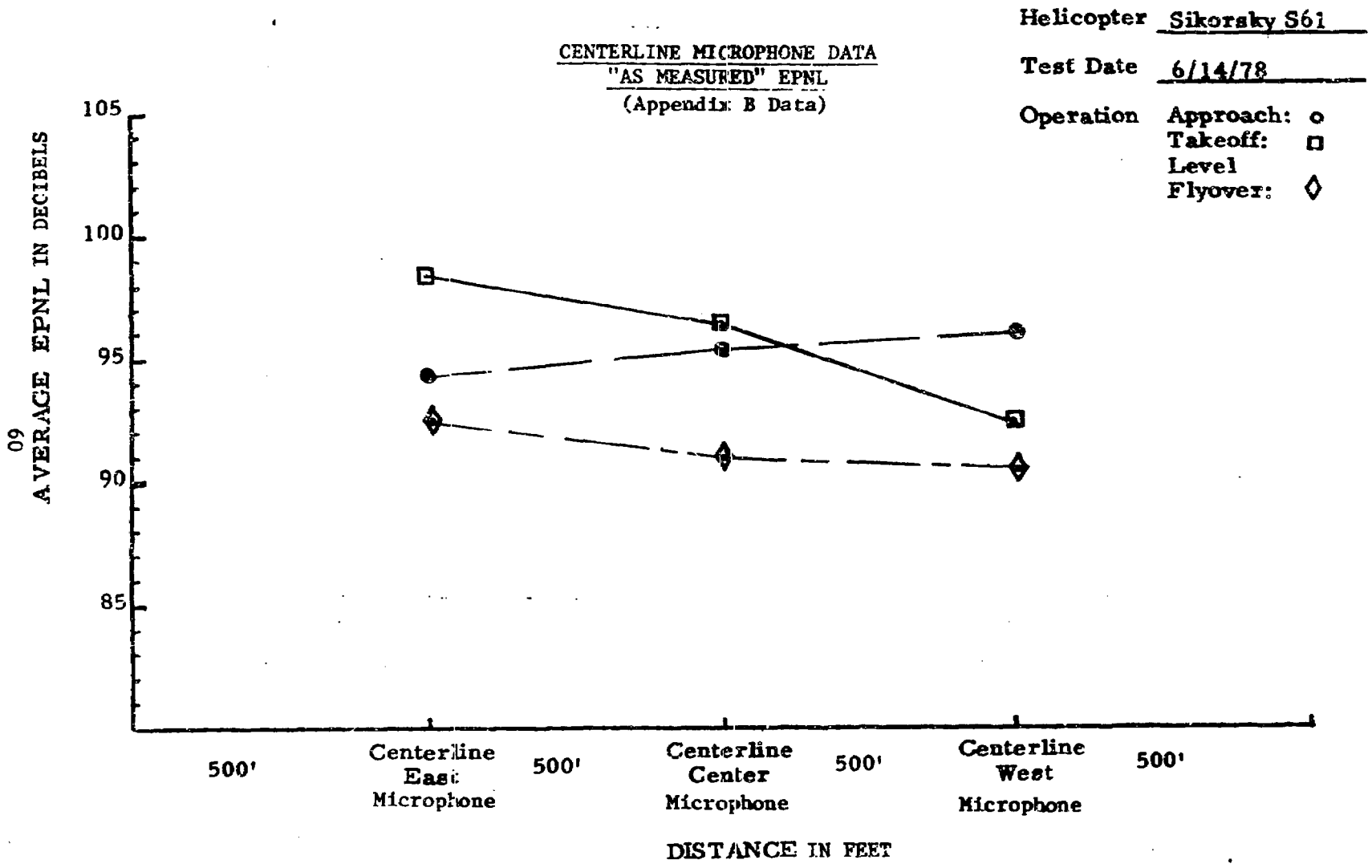


Figure 6.2.6 S-65, (CH-53), 6/14/78
CENTERLINE MICROPHONE DATA

"AS MEASURED" EPNL
(Appendix B Data)

Helicopter Sikorsky S-65 (CH-53)

Test Date 6/14/78

Operation Approach: o
Takeoff: □
Level Flyover: ◇

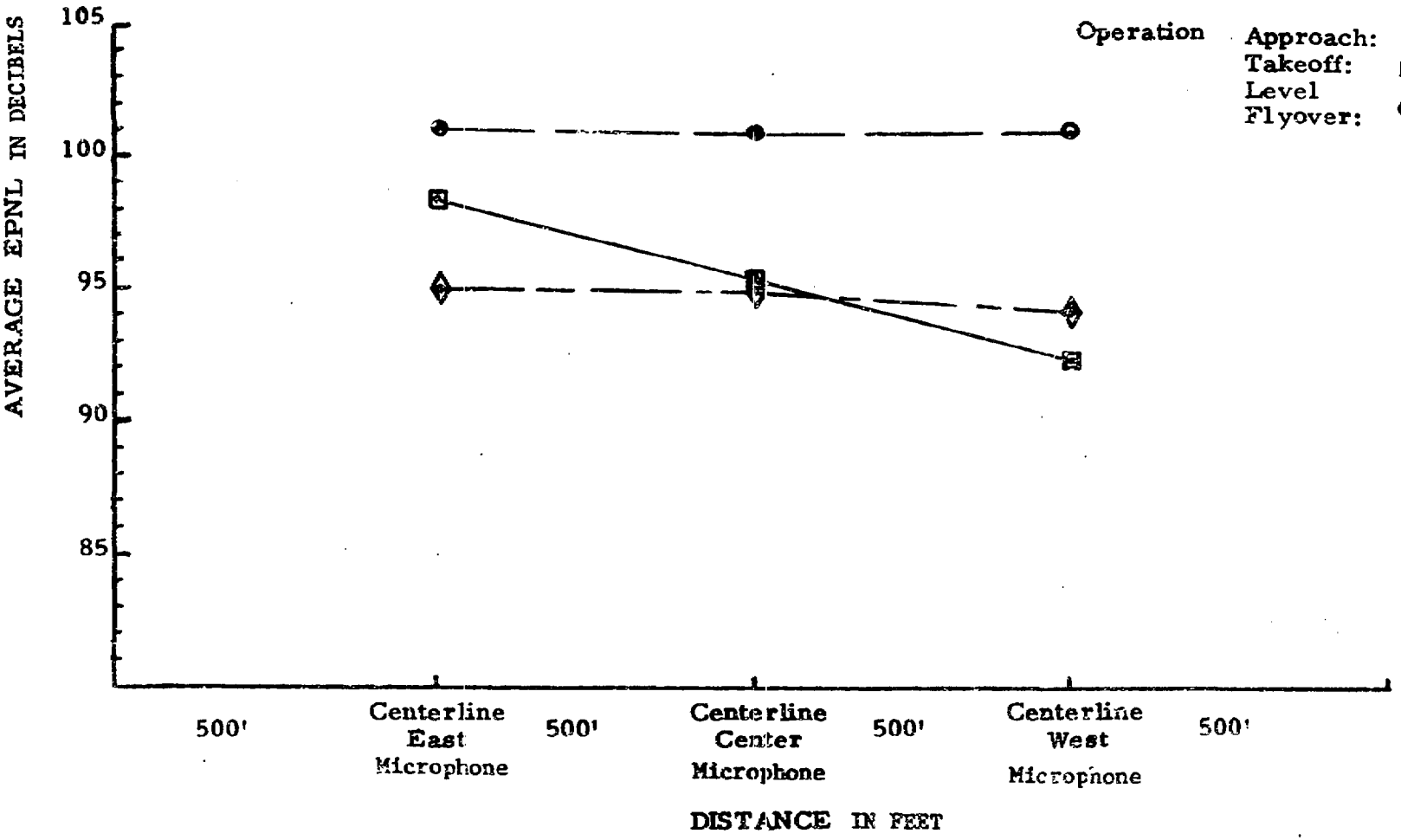


Figure 6.2.7

S-65, (CH-53) 6/15/78

CENTERLINE MICROPHONE DATA

"AS MEASURED" EPNL

(Appendix B Data)

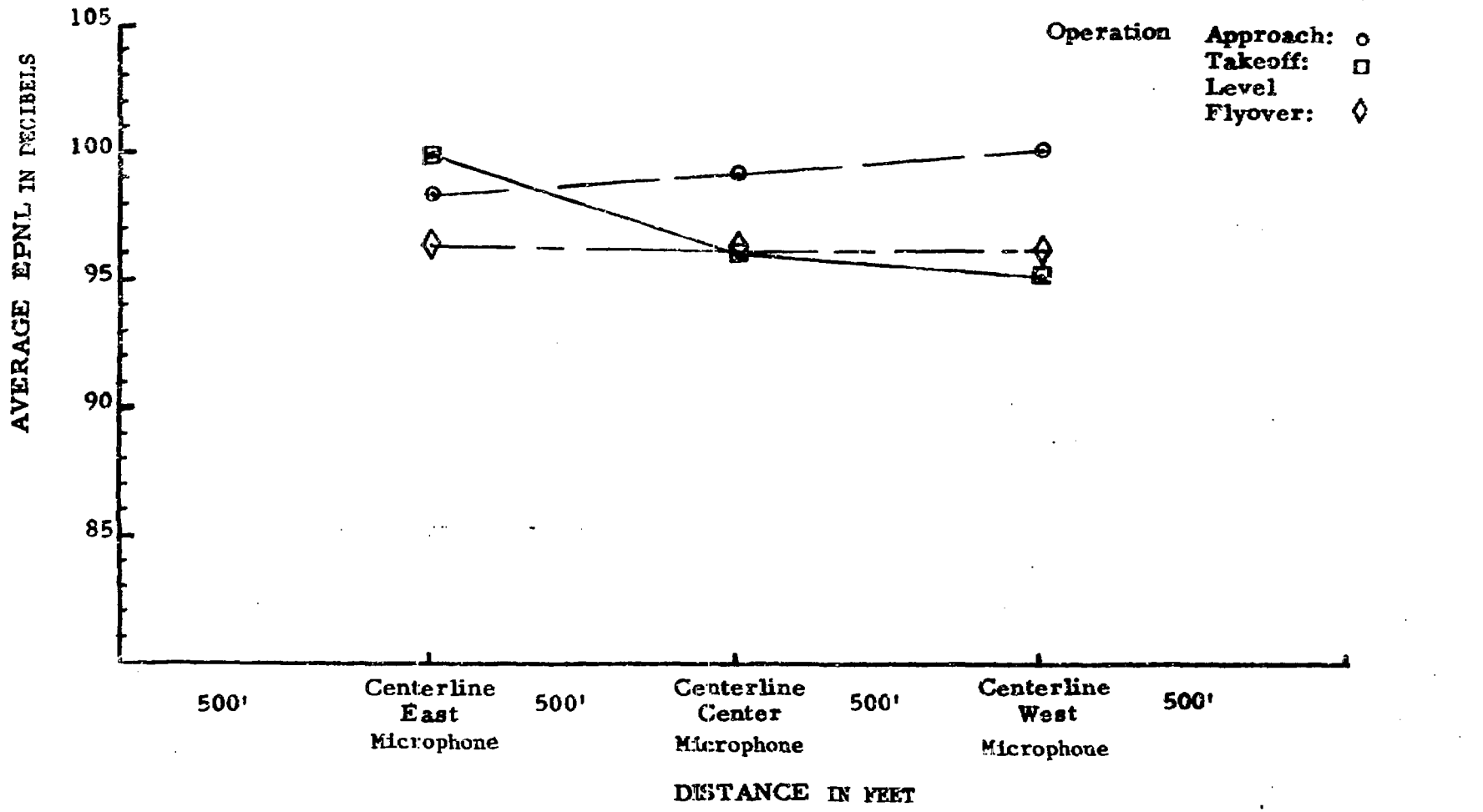


Figure 6.2.8
BELL-212, (UHIN), 6/15/78

CENTERLINE MICROPHONE DATA

"AS MEASURED" EPNL

(Appendix E Data)

Helicopter Bell 212

Test Date 6/15/78

Operation Approach: o
Takeoff: □
Level Flyover: ◇

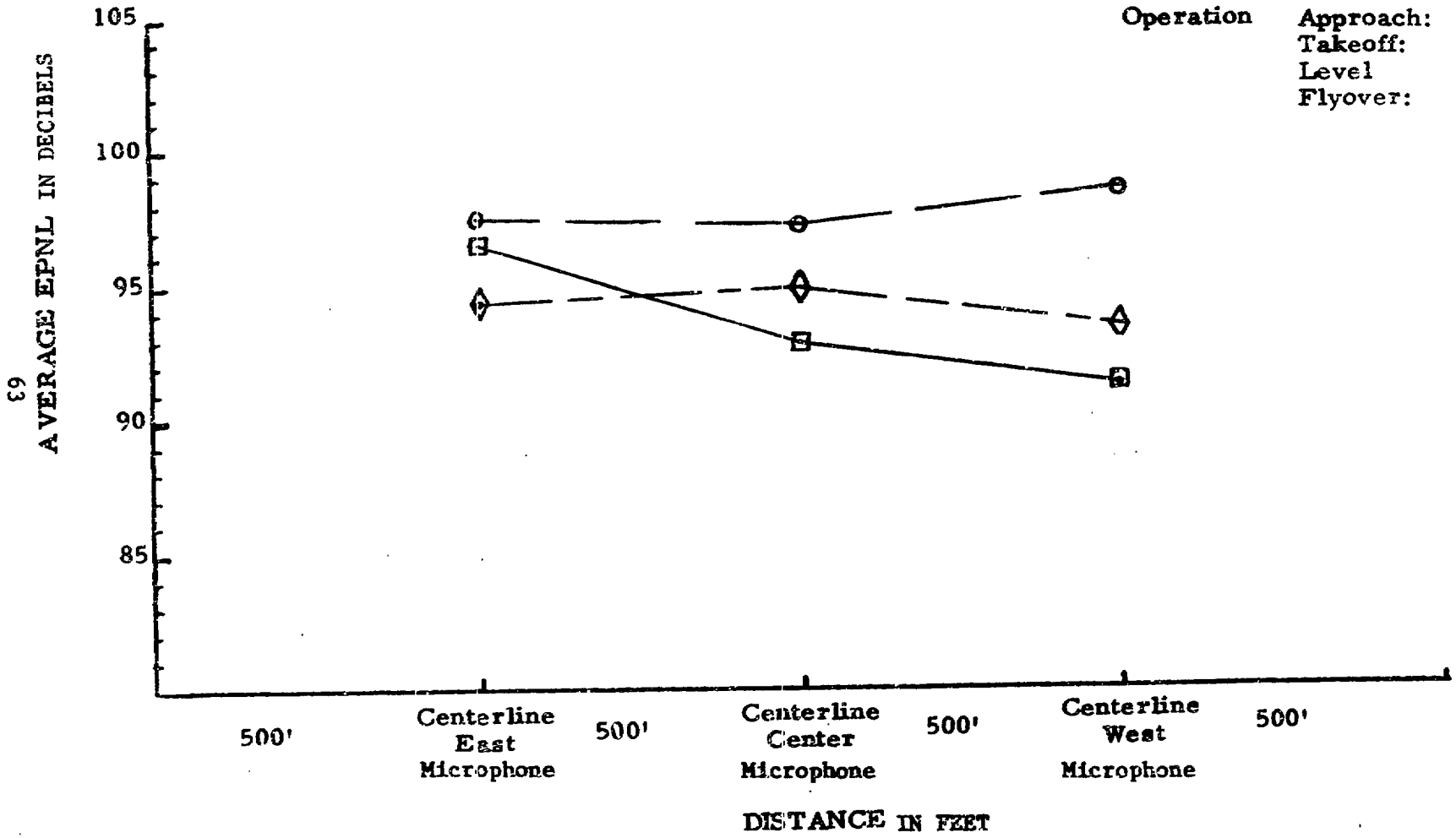


Figure 6.2.9
SA-341G, 6/15/78

CENTERLINE MICROPHONE DATA

"AS MEASURED" EPNL

(Appendix B Data)

Helicopter Gazelle SA-341G

Test Date 6/15/78

Operation Approach: o
Takeoff: □
Level
Flyover: ◇

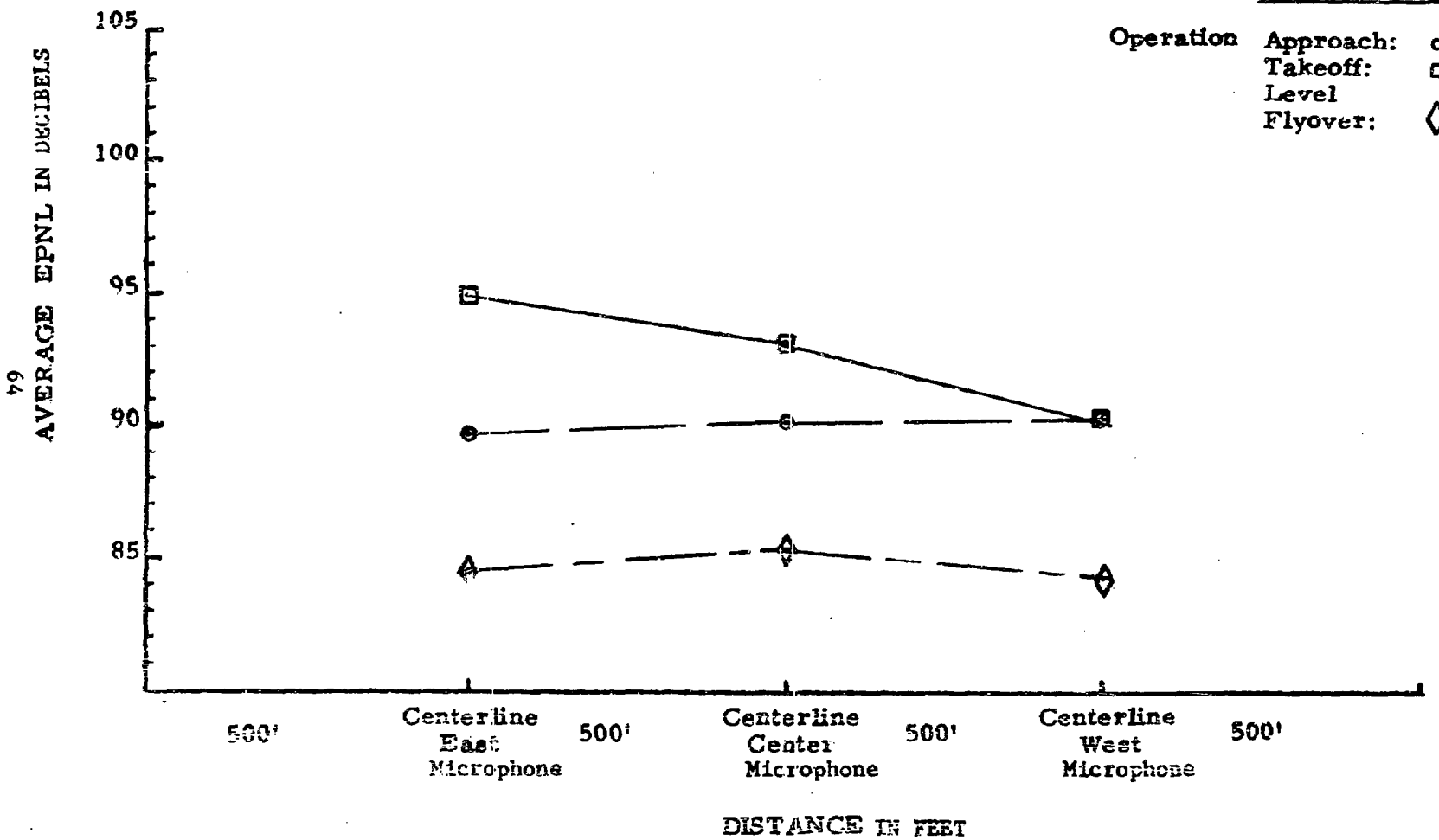


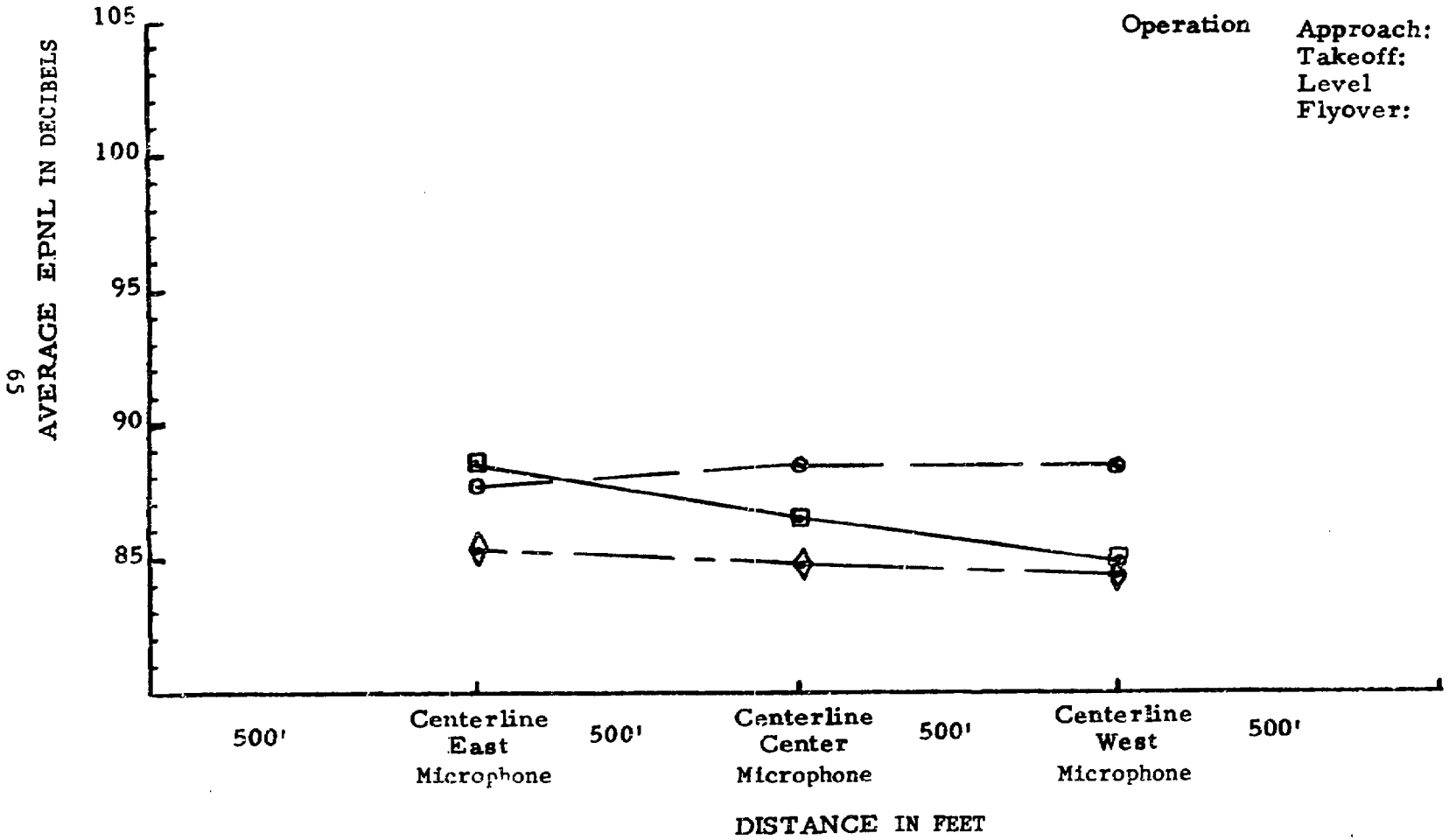
Figure 6.2.10
HUGHES 500-C 6/15/78
CENTERLINE MICROPHONE DATA

"AS MEASURED" EPNL
(Appendix B Data)

Helicopter Hughes 500-C

Test Date 6/16/78

Operation Approach: ○
Takeoff: □
Level
Flyover: ◇



3. The PUMA, utilizing a rotor speed of 267 RPM as the top of the normal operating range (the manual defines a level of 265 RPM), achieved a consistency of ± 2%.

The top of the normal operating range for each of the test helicopters is defined below:

1.	PUMA	267 RPM
2.	BO-105	100%
3.	Bell 206-L	100%
4.	S-61 (H-3)	103%
5.	CH-53	103%
6.	Bell 212 (H-1)	100%
7.	Hughes 500C	103%
8.	Gazelle	100%

6.4 TAKEOFF FLIGHT PATH REPEATABILITY

Figures 6.4.1 through 6.4.15 present grouped helicopter takeoff flight trajectory data for each helicopter test series. Meteorological data are also presented for each test day.

Appendix E presents individual event flight trajectory data for each takeoff. Each individual event plot also includes helicopter groundspeed.

Close examination of this takeoff data reveals, as one might expect, a range of adherence to the reference takeoff profiles. Despite the influence of winds aloft, and the relative unfamiliarity of the pilots with the test procedures, the feasibility of the takeoff mode for certification purposes was clearly demonstrated. Consistent adherence to the reference climb profile within the allowable limits should be easily achieved by the helicopter manufacturers' test pilots.

Experience acquired in testing the takeoff procedure has established the need to:

1. Measure windspeed and direction from the ground through an altitude of 800 feet during the test sequence and terminate testing when winds aloft create difficulty in adherence to the reference flight path.

2. Carefully monitor engine power (torque) as well as main rotor RPM throughout each test run.

3. Emphasize pilot anticipation of the takeoff rotation point.

In summary, adherence to the flight track centerline was generally excellent. Climb gradients, although in some cases slightly low, tended to be consistent. The repeatability of the takeoff operation within acceptable limits was conclusively demonstrated.

Figure 6.4.1

TAKEOFF FLIGHT PATH DATA: SA 330J, 6/12/78

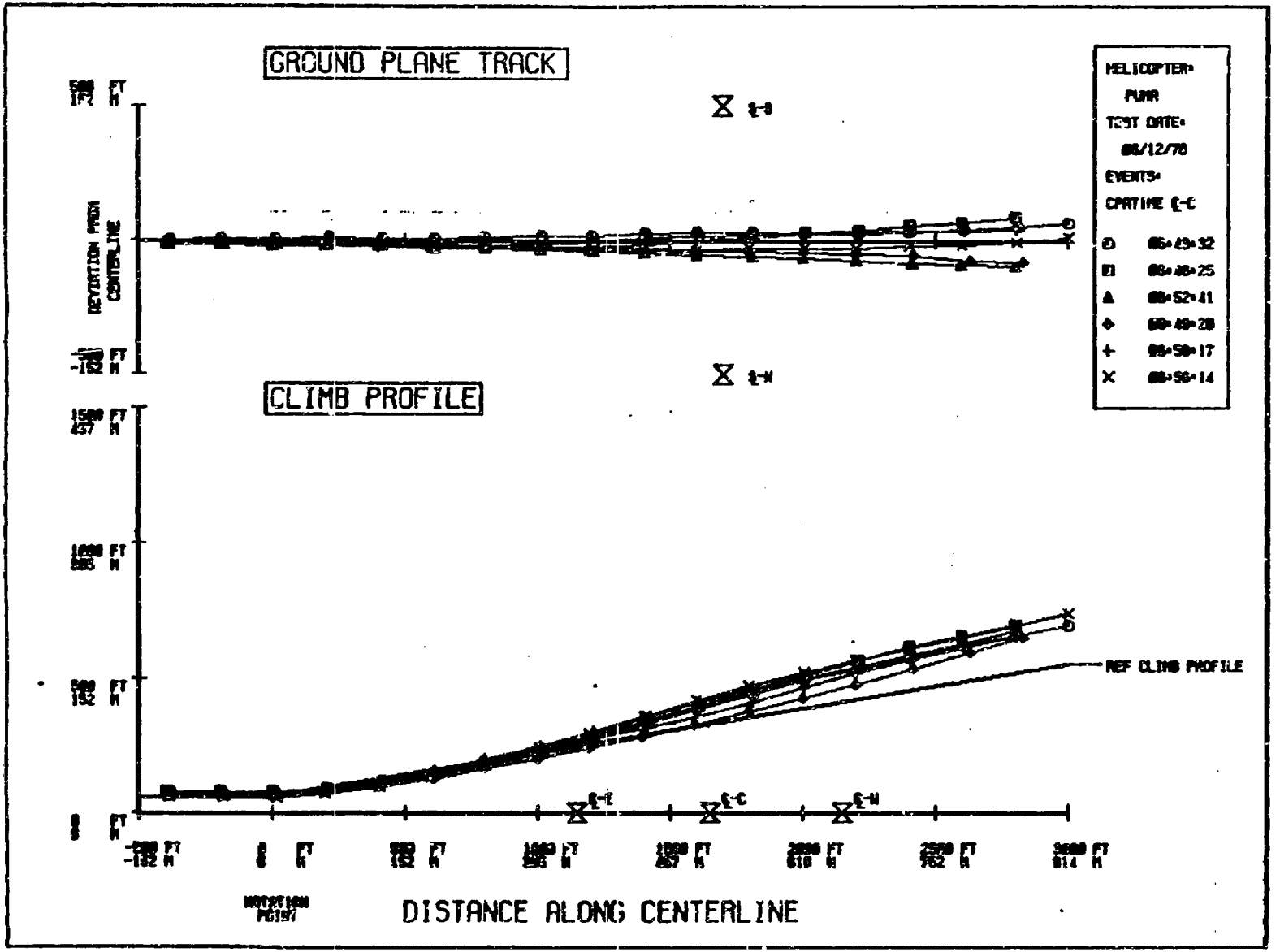


Figure 6.4.2

TAKEOFF FLIGHT PATH DATA: BO-105, 6/12/78

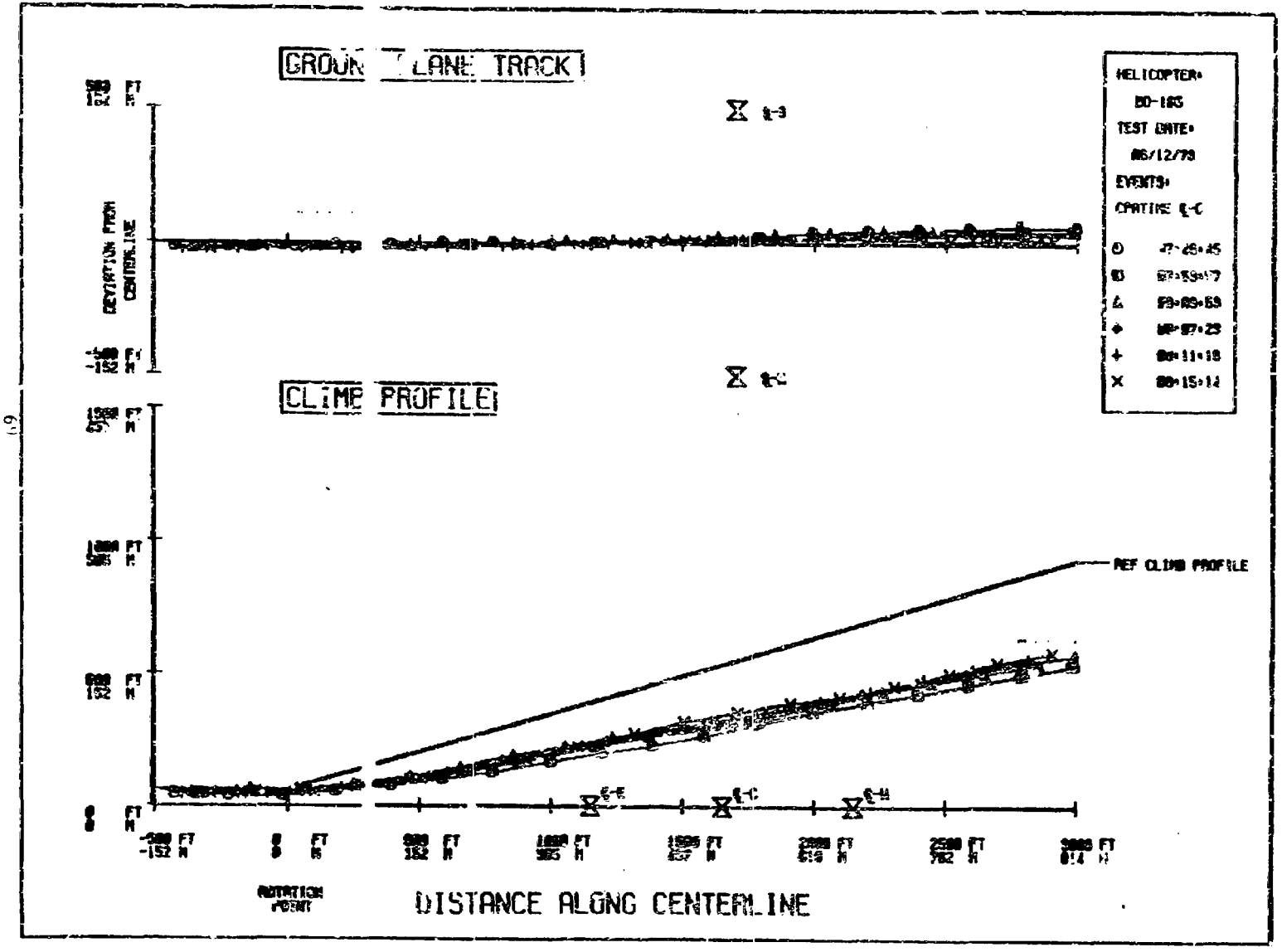


Figure 6.4.3

METEOROLOGICAL DATA: 6/12/78

Time EDST	W/Speed	W/Direction	Temperature ^{o}F	DEW Point ^{o}F	Barometric Pressure Inches
05:45	5 knots	SSW	55	52	30.19
06:00	4.5 knots	SSW	56	53	30.195
06:15	3.5 knots	SSE	57	54	30.195
06:30	4.5 knots	S	58	55	30.197
06:45	4 knots	SSW	58.5	56	30.199
07:00	8.5 knots	SSW	61	56.2	30.2
07:15	8.5 knots	SSW	61.5	56	30.2
07:30	5 knots	SSW	62.5	57.75	30.21
07:45					
08:00	8 knots	SSW	66.0	58.0	30.21
08:15	9 knots	SSW	66.0	57.0	30.21
08:30	9 knots	SSW	67.0	57.0	30.20
08:45	8-10 knots	SSW	68.0	56.5	30.20
09:00	7 knots	SSW	69.0	55.8	30.195
09:15	8 knots	SW	70.5	55.5	30.195
09:30	8 knots	SW	71	55.5	30.195

Figure 6.4.4

TAKEOFF FLIGHT PATH DATA: BELL 206-L, 6/13/78

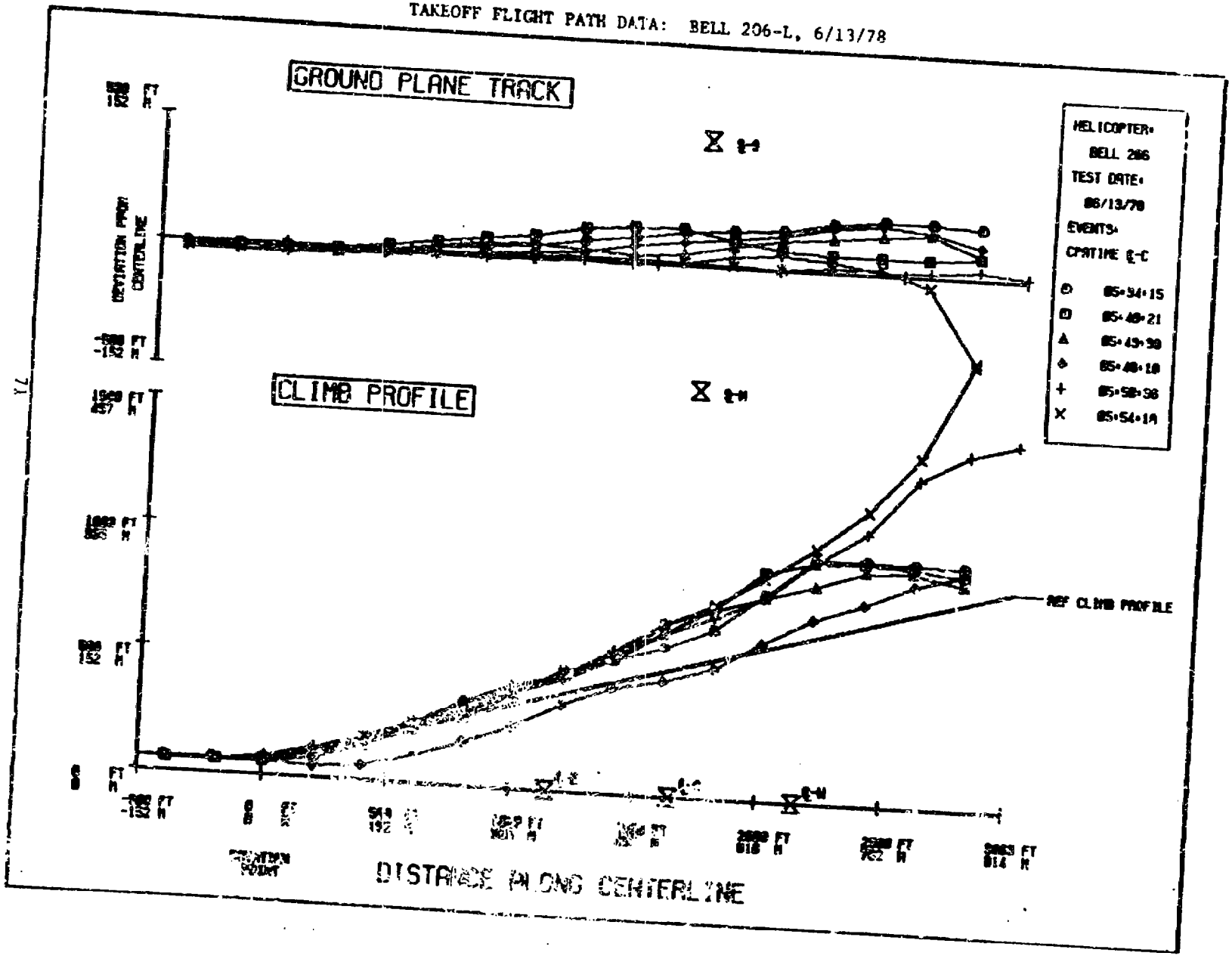


Figure 6.4.5

METEOROLOGICAL DATA: 6/13/78

Time EDST	W/Speed/Kts.	W/Direction	O.A.T.°F	DEW/Point °F	Barometric Pressure Inches
0400					
0415					
0430	10.5	205	63.5	60.5	29.86
0445	10	205	63.5	60.5	29.86
0500	9.5	210	64	61	29.86
0515	10	210	64	61	29.86
0530	8	210	65	61.5	29.866
0545	6	210	64.5	61	29.87
0600	7.5	210	64.5	61.5	29.875
0615	9.5	210	65	62	29.87
0630	10	210	65.5	62	29.87
0645	10	215	66.5	63	29.865
0700	9.5	215	67.5	63	29.865
0715					
0730					
0745		Test terminated for day @ 1106a			
0800					
0815					
0830					
0845					
0900					
0915					
0930					
0945					
0930					
0945					
1000					

Figure 5.4.6

TAKEOFF FLIGHT PATH DATA: S-61, 6/14/78

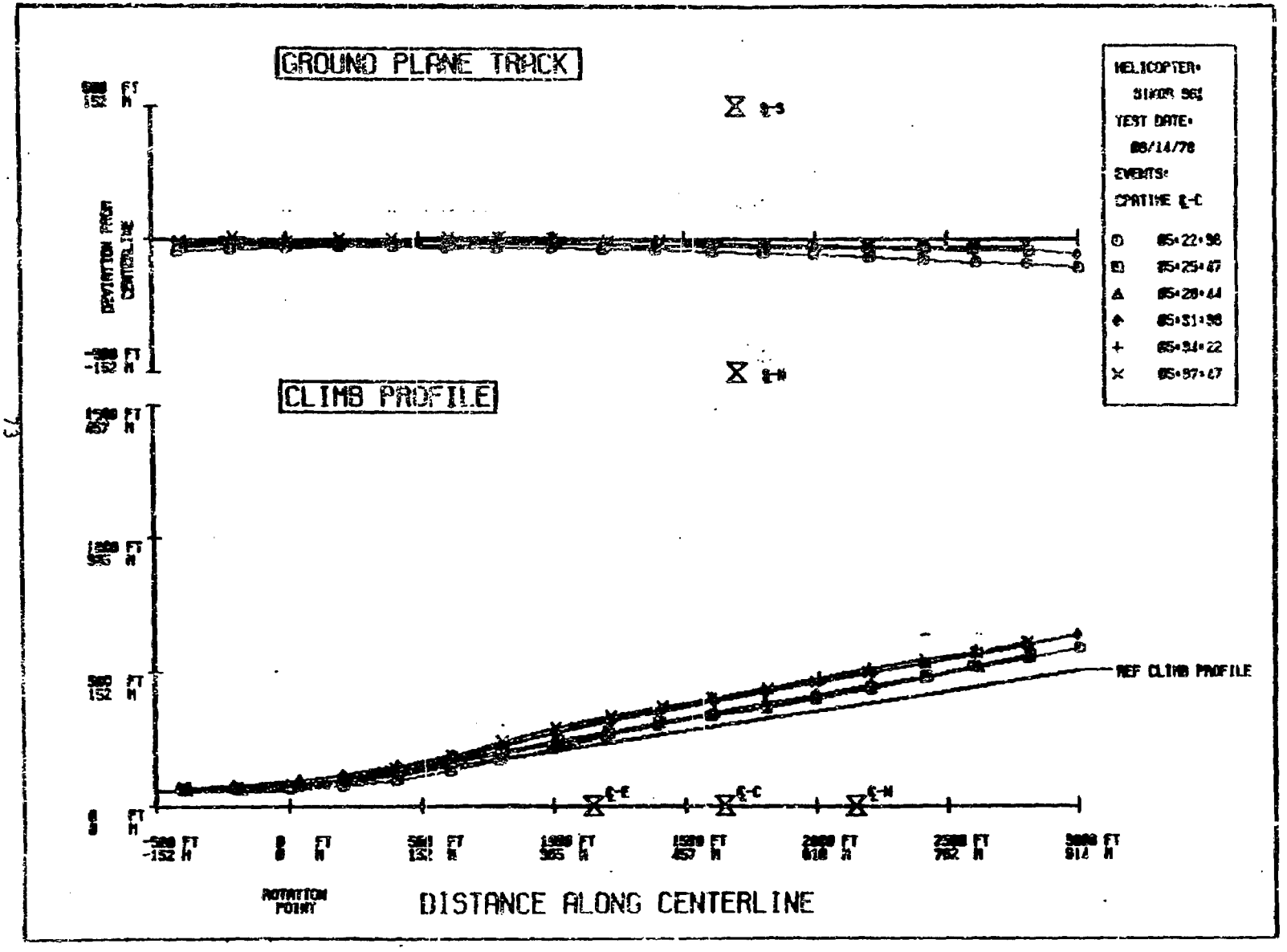


Figure 6.4.7

TAKEOFF FLIGHT PATH DATA: S-65 (CH-53), 6/14/78

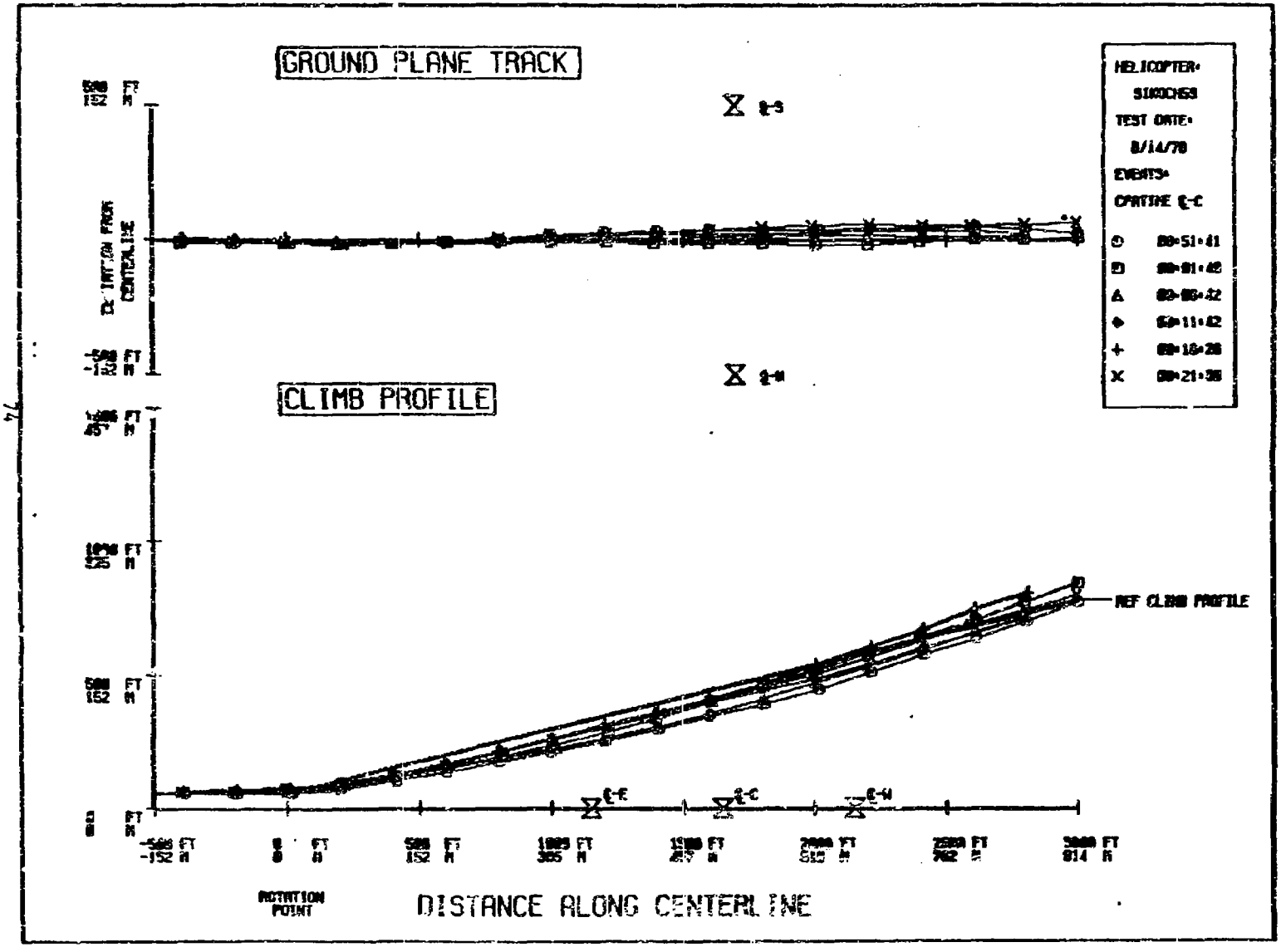


Figure 6.4.8

METEOROLOGICAL DATA: 6/14/78

Time EDST	W/Speed/Kts.	W/Direction	O.A.T. °F.	DEW Point °F	Barometric Pressure Inches	Remarks
0400	7	275	50	40	30.07	
0415	7	275	50	40	30.07	
0430	7.5	275	49	40.5	30.075	
0445	6	270	48.5	41	30.08	
0500	7	270	48.5	41	30.08	
0515	9	270	49	41.5	30.085	
0530	7.5	280	48.5	42	30.09	
0545	10	280	49	42	30.1	
0600	10	280	49	42.5	30.1	
0615	9.5	270	50.5	43	30.1	
0630	10	270	51	43	30.11	
0645	8.5	270	52.5	43	30.12	
0700	9	270	53	43.5	30.12	
0715	10.5	275	53.5	43.5	30.12	
0730	11.5	270	54.5	43.5	30.13	
0745	11	275	55	43.5	30.13	
0800	10	300	56	43	30.13	
0815	10 - 14	295	56	42.5	30.13	
0830	15	300	56.5	42	30.13	
0845	13	290	58	42.5	30.14	
0900	8 - 10	290 320	58.5	42.5	30.14	
0915	13	300	59	42.5	30.14	
0930	11	285	59	42.5	30.14	

Figure 6.4.9

TAKEOFF FLIGHT PATH DATA: BELL 212, 6/15/78

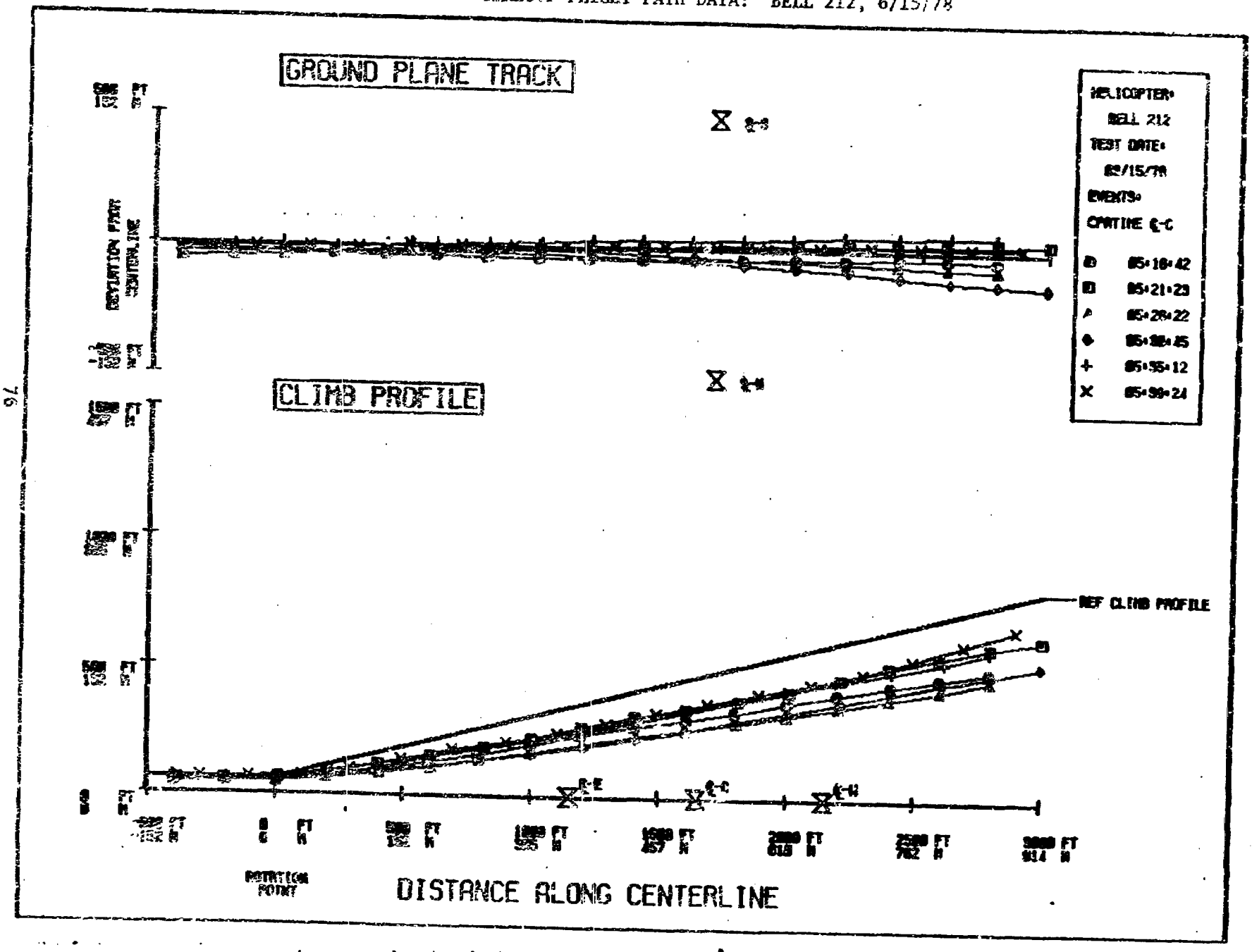


Figure 6.4.10

TAKEOFF FLIGHT PATH DATA: S-65, (CH-53), 6/15/78

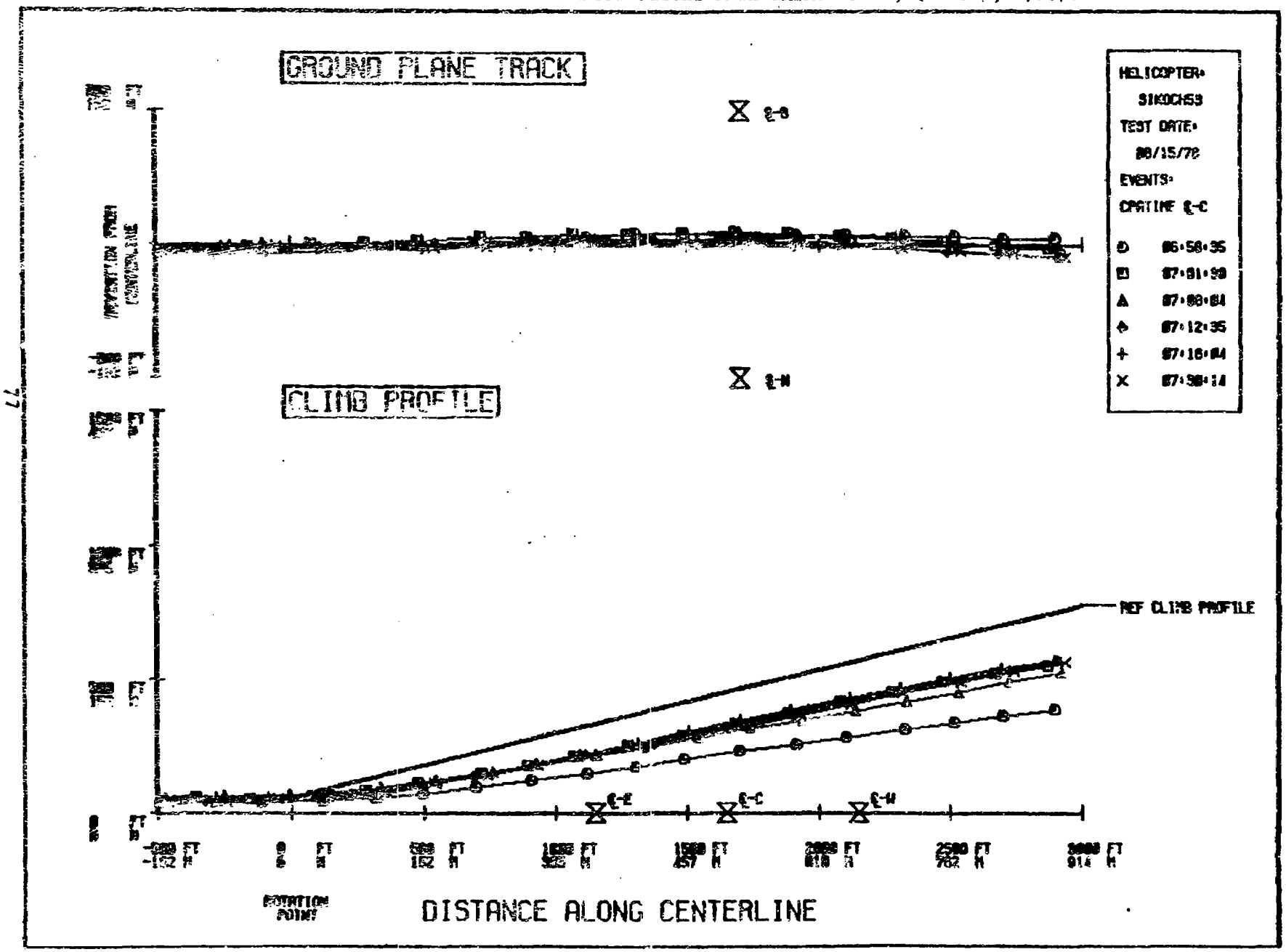


Figure 6.4.11

TAKEOFF FLIGHT PATH DATA: SA-341G, 6/15/78

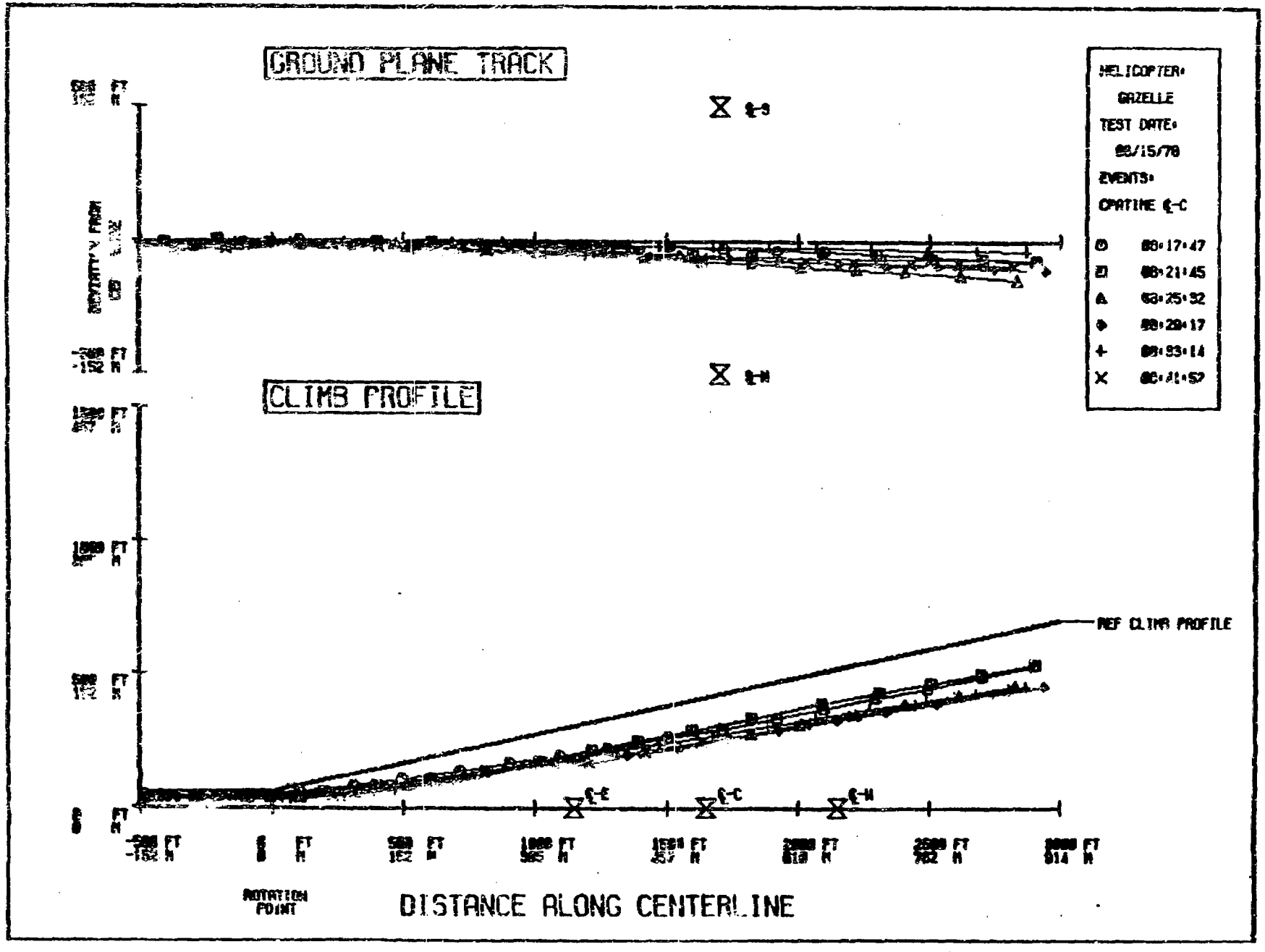


Figure 6.4.12
METEOROLOGICAL DATA: 6/15/78

Time EDST	W/Direction	Wind/Speed/Kts.	Outside Air Temperature °F	DEW Point °F	Barometric Pressure Inches
0400	335	1	45	39.5	30.24
0415	335	3	44	39	30.24
0430	335	2	44	39	30.25
0445	300	4	44	38	30.25
0500	300	4	44	39	30.26
0515	320	4	44	38	30.26
0530	210	3	44	39	30.26
0545	225	3	45	39	30.27
0600	270	2	45	40	30.27
0615	270	2	47	41	30.28
0630	295	4	49	43	30.28
0645	325	2	50	44	30.28
0700	325	4	53	45	30.28
0715	305	5	54	44	30.29
0730	310	5	55	44	30.29
0745	310	6	57	43	30.29
0800	330	5	58	42	30.29
0815	300	8	58	42	30.30
0830	300	9	59	42	30.30
0845	320	9	59	42	30.30
0900	325	7	59	42	30.30
0915	310	7	60	42	30.30
0930	310	4	60	43	30.30
0945	325	9	60	43	30.30

Figure 6.4.13

TAKEOFF FLIGHT PATH DATA: BELL 206-L, 6/16/78

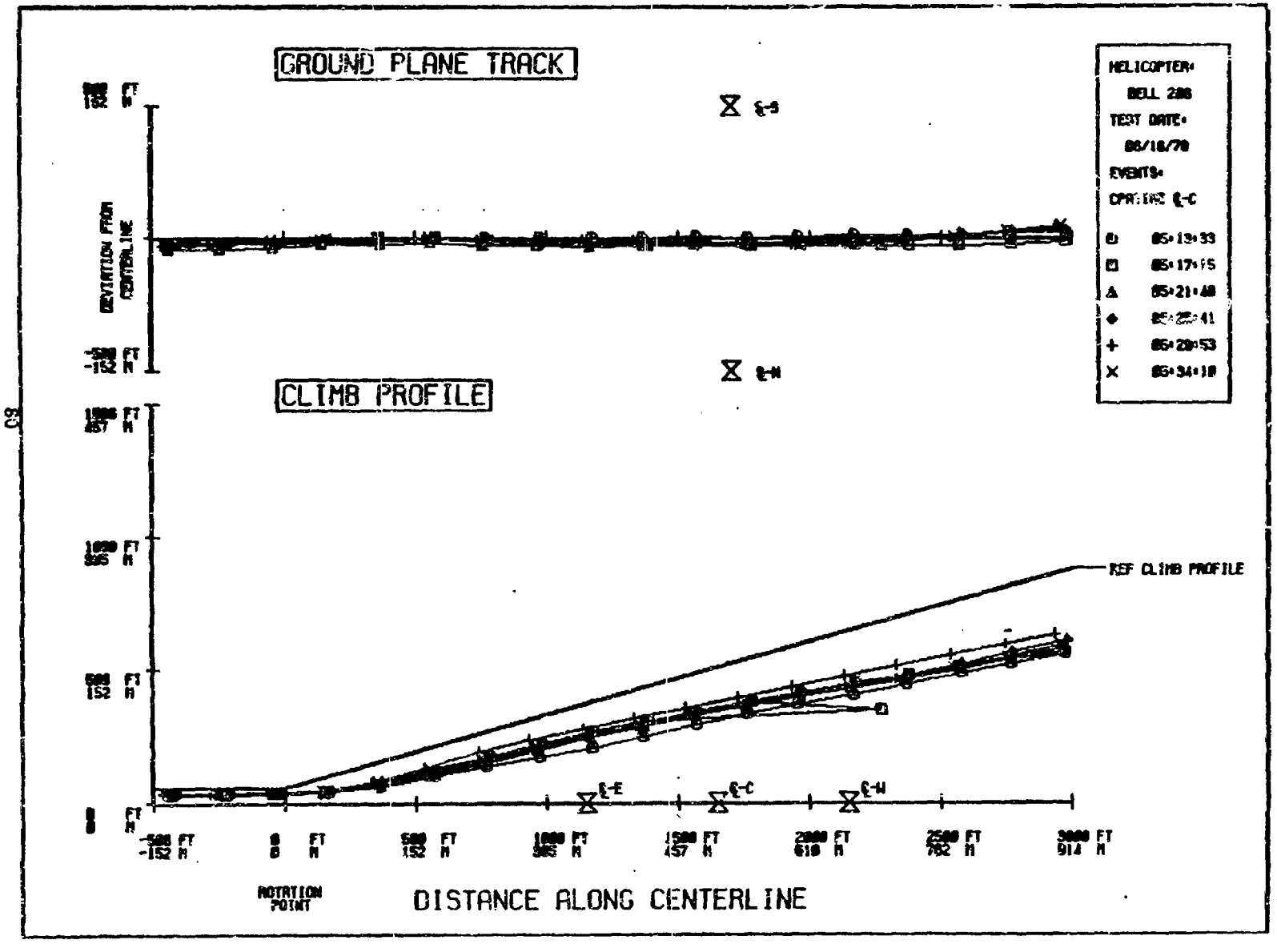


Figure 6.4.14

TAKEOFF FLIGHT PATH DATA: HUGHES 500C, 6/16/78

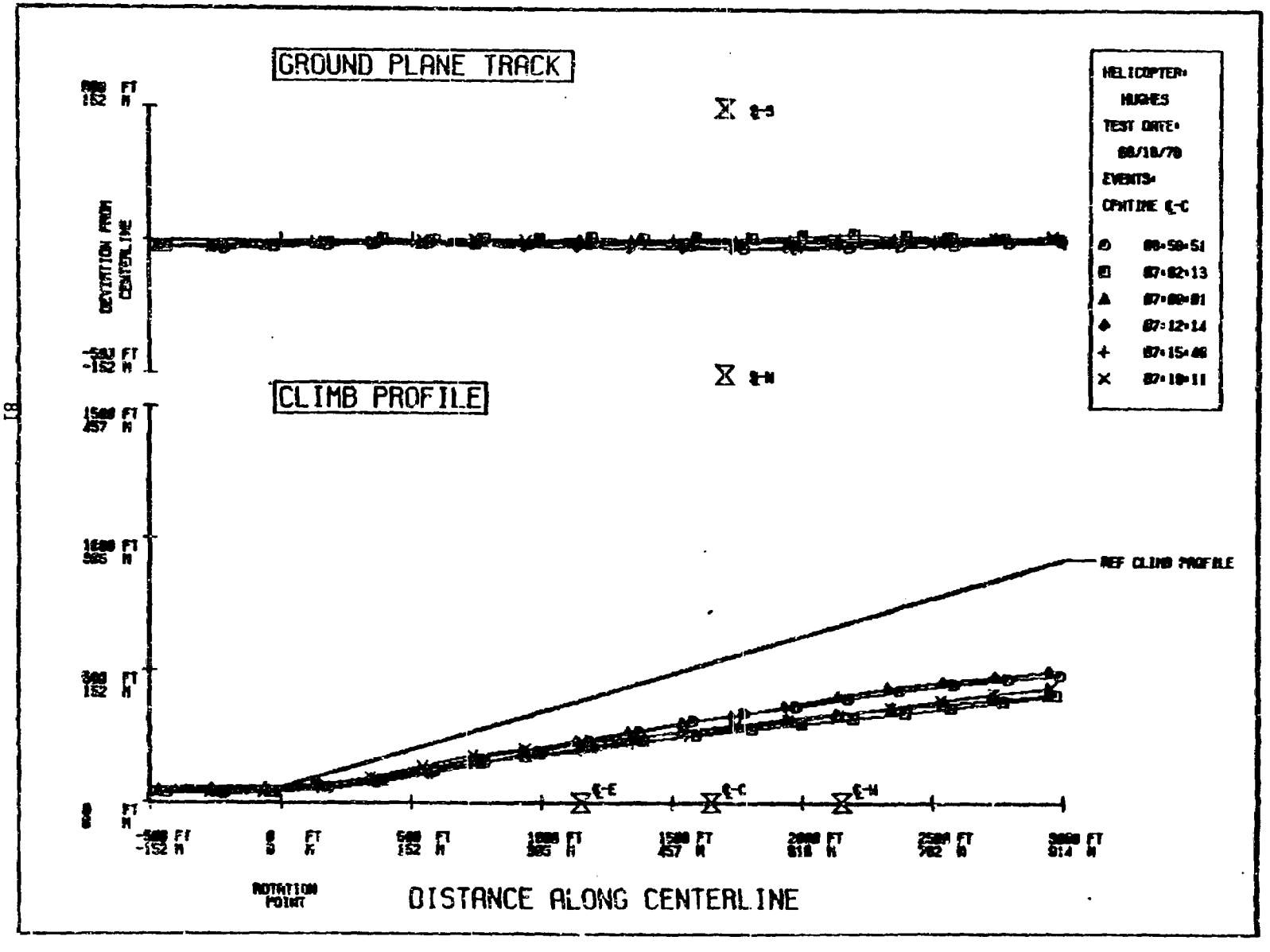


Figure 6.4.15

METEOROLOGICAL DATA: 6/16/78

Time EDST	W/Direction	Wind/Speed/Kts.	Outside Air Temperature °F	DEW Point °F	Barometric Pressure Inches
0400	330	4	51	47	30.30
0415	330	4	51	47	30.30
0430	330	4	50	46	30.30
0445	330	4	50	46	30.30
0500	330	4	50	46	30.30
0515	330	3	49	45	30.30
0530	330	4	49	45	30.31
0545	330	4	49	44	30.32
0600	330	4	50	45	30.32
0615	330	4	52	47	30.33
0630	330	4	53	47	30.33
0645	330	5	55	48	30.34
0700	330	5	56	49	30.35
0715	330	5	58	49	30.35
0730	340	6	60	48	30.35
0745	345	5	62	48	30.36
0800	345	5	63	47	30.36
0815	335	5	64	46	30.36
0830	030	5	66	46	30.36
0845	040	5	66	46	30.36
0900	001	4	68	46	30.37
0915	-	-	-	-	-
0930	-	-	-	-	-

7.0 EXAMINATION OF CORRECTION AND ADJUSTMENT PROCEDURES

Another objective of the NAFEC test program was to examine the efficacy and the magnitude of EPNL corrections for deviation from the prescribed testing requirements using various correction methodologies. The subsections of this chapter will examine:

7.1 Influence of Tone Corrections between 50 Hz and 800 Hz.
7.2 Atmospheric Absorption Correction (using eight different temperature relative humidity scenarios).
7.3 Speed Correction (using both the 10 log (V_T/V_R) procedure and speed trial curves.
7.4 EPNL Duration Correction (using the accepted 10 log SR_1/SR_2 procedure).

7.1 INFLUENCE OF TONE CORRECTIONS BETWEEN 50 Hz AND 800 Hz

The "As Measured" EPNL data presented in Appendix B have been computed with application of tone corrections from 800 Hz to 10 kHz. The Appendix D data have been computed with application of tone corrections from 50 Hz to 10 kHz. This section analyzes the difference in EPNL resulting from these two different computational procedures.

The average increase in EPNL associated with low frequency tones has been analyzed by operational mode:

(a) by helicopter
(b) by microphone

The data presented in Tables 7.1.1, 7.1.2, and 7.1.3 show the following three microphone average (CL-C, SL-S, SL-N) increases in EPNL, averaged over all helicopters.

(1) 0.7 dB on Takeoff
(2) 0.6 dB on Approach
(3) 0.7 dB on Level Flyover

It is noted that these data are based on measurements taken over a surface of relatively hard-packed earth and loosely matted grass which was not considered to be excessively absorptive.

OBSERVATIONS

- The average Delta EPNL values computed in reanalysis of the NAFEC data can be used as an approximate correction to data acquired without tone corrections applied below 500-800 Hz. Specific corrections for an individual helicopter type are of course recommended when possible.

- Pronounced directivity is exhibited between the variations measured at two sideline microphones for many of the helicopters.

- Level flyover and approach operational modes show a slightly higher sensitivity to tones below 800 Hz than does the takeoff mode.

COMMENT

It is noted that results for the SA 330J differ from results reported in ICAO, Working Group B, Working Paper (H-6), No. 8. The difference in results is suspected to arise from a difference in ground surface characteristics.

Requiring a more rigorously defined standard for the ground plane surface for microphone placement (than currently required in FAR Part 36 or ICAO Annex 16) would provide increase confidence in grouping or comparing helicopter noise data from different measurement programs.

Table 7.1.1
TAKEOFF: INFLUENCE OF LOW FREQUENCY TONE CORRECTIONS
EPNL DIFFERENTIAL IN DECIBELS

	SL-S Left	CL-C	SL-N Right	3 Microphone Average
Hughes 500G 6/16/78	$\bar{x}$ = .76 CV = 9.8%	.98 7.0%	1.2 7.8%	$\bar{\bar{x}}$ = .98
S-61 6/14/78	$\bar{x}$ = .92 CV = 8.1%	1.3 3.9%	1.0 8.1%	$\bar{\bar{x}}$ = 1.1
BO-105 6/12/78	$\bar{x}$ = .98 CV = 14.2%	1.05 9.9%	.35 26.3%	$\bar{\bar{x}}$ = .79
Bell 206-L 6/16/78	$\bar{x}$ = 1.1 CV = 6.8%	.96 5.4%	1.0 19.7%	$\bar{\bar{x}}$ = 1.0
Bell 212 6/15/78	$\bar{x}$ = .67 CV = 29.5	.81 4.9%	.62 19.7%	$\bar{\bar{x}}$ = .68
Gazelle SA-341G 6/15/78	$\bar{x}$ = .45 CV 27.9%	.03 157%	.25 50%	$\bar{\bar{x}}$ = .24
PUMA SA-330-J	$\bar{x}$ = .113 CV = 61.3%	.766 15.7%	.283 60.8%	$\bar{\bar{x}}$ = .4
S-65 6/15/78	$\bar{x}$ = .62 CV	.7		
S-65 6/14/78	$\bar{x}$ = CV	.7	.58	$\bar{\bar{x}}$ = .63
AVERAGE OF THE 3 MICROPHONE AVERAGES				$\bar{\bar{x}}^{*}$ = .73 dB

Legend
CV = Coefficient of variation
$\bar{x}$ = Individual microphone average
$\bar{\bar{x}}$ = Three microphone average
$\bar{\bar{x}}^{*}$ = Average of the three microphone averages

TABLE 7.1.2
APPROACH: INFLUENCE OF LOW FREQUENCY TONE CORRECTION
EPNL DIFFERENTIAL IN DECIBELS

	SL-S Left	CL-C	SL-N Right	3 Micr. Average
Hughes 500C 6/16/78	$\bar{x}$ = .68 CV 28.4%	1.02 6.1%	.83 17.9%	$\bar{\bar{x}}$ = .84
S-61 6/14/78	$\bar{x}$ = .63 CV 12.9%	.7 9.0%	.7 12.7%	$\bar{\bar{x}}$ = .67
BO 105 6/12/78	$\bar{x}$ = .75 CV 11.0%	1.0 4.1%	.46 11.2%	$\bar{\bar{x}}$ = .74
Bell 206-L 6/16/78	$\bar{x}$ = .58 CV 14.1%	.65 8.3%	1.0 16.7%	$\bar{\bar{x}}$ = .74
Bell 212 6/15/78	$\bar{x}$ = .38 CV 10.7%	.53 15.2%	.76 10.7%	$\bar{\bar{x}}$ = .55
Gazelle SA-341G 6/15/78	$\bar{x}$ = .21 CV 79%	.1 81%	.31 39%	$\bar{\bar{x}}$ = .20
PUMA SA 330J 6/12/78	$\bar{x}$ = .26 CV 86%	.18 45.5%	.22 19.9%	$\bar{\bar{x}}$ = .22
S-65 6/15/78	$\bar{x}$ = .7 CV	.5		
S-65 6/14/78		.675	.78	$\bar{\bar{x}}$ = .71
AVERAGE OF THE 3 MICROPHONE AVERAGES				$\overset{*}{x}$ = .58 dB

Legend
CV = Coefficient of variation
$\bar{x}$ = Individual microphone average
$\bar{\bar{x}}$ = Three microphone average
$\overset{*}{x}$ = Average of the three microphone averages

Table 7.1.3
LEVEL FLYOVER: INFLUENCE OF LOW FREQUENCY TONE CORRECTIONS
EPNL DIFFERENTIAL IN DECIBELS

	SL-S	CL-C	SL-N	3 Microphone Average
Hughes 500C 6/16/78	$\bar{\bar{x}}$ = .97 CV = 7.8%	1.0 5.7%	.91 11.7%	$\bar{\bar{x}}$ = .96
S-61 6/14/78	$\bar{\bar{x}}$ = .78 CV = 18.8%	1.02 9.6%	.81 11.6%	$\bar{\bar{x}}$ = .87
BO-105 6/12/78	$\bar{\bar{x}}$ = 1.1 CV = 9.6%	1.1 14.7%	.8 15.3%	$\bar{\bar{x}}$ = 1.2
Bell 206-L 6/16/78	$\bar{\bar{x}}$ = .51 CV = 19.2%	.75 11.1%	.51 15%	$\bar{\bar{x}}$ = .59
Bell 212 6/15/78	$\bar{\bar{x}}$ = .62 CV = 14.5%	.52 20.5%	.52 23.3%	$\bar{\bar{x}}$ = .55
Gazelle SA-341G 6/15/78	$\bar{\bar{x}}$ = .03	0	.06	$\bar{\bar{x}}$ = .03
PUMA SA 330J 6/12/78	$\bar{\bar{x}}$ = .36 CV = 37.9%	.66 20.4%	.53 28.2%	$\bar{\bar{x}}$ = .51
S-65 6/15/78 6/14/78	**	.56 29.1%	**	$\bar{\bar{x}}$ = .56
AVERAGE OF THE 3 MICROPHONE AVERAGES				$\bar{\bar{x}}^{*}$ = .66

* Data grouped for flyovers in both directions
** Limited data

Legend
CV = Coefficient of variation
$\bar{x}$ = Individual microphone average
$\bar{\bar{x}}$ = Three microphone average
$\bar{\bar{x}}^{*}$ = Average of the three microphone averages

7.2 ATMOSPHERIC ABSORPTION CORRECTION ANALYSIS

The atmospheric absorption correction procedure involves application of the Society of Automotive Engineers (SAE) ARP-866A data to adjust the measured individual 24, one-third octave band sound pressure levels comprising PNLTM to the levels which would have been measured on a standard acoustical day (77°F, 70 percent R.H.). The adjustment procedure, set out in FAR 36 (Appendix A, Section d), incorporates the absorption correction in the "Delta-one" correction. "Delta-one" is computed as the difference between the measured PNLTM (expressed in dB) and a new value of PNLT computed using the adjusted spectra of PNLTM.

"Delta-one" usually accounts for (1) absorption differences between test-day and standard-day conditions, (2) spherical spreading propagation differences between the actual test aircraft position (at PNLTM) and the reference flight path position for PNLTM, (3) extra atmospheric absorption along the path difference between the reference and actual rotocraft position at PNLTM. For the purpose of this analysis the actual position at PNLTM was set equal to the reference position forcing the second and third parts of "delta-one" to zero, leaving only the differential atmospheric absorption between test-day conditions and standard-day conditions.

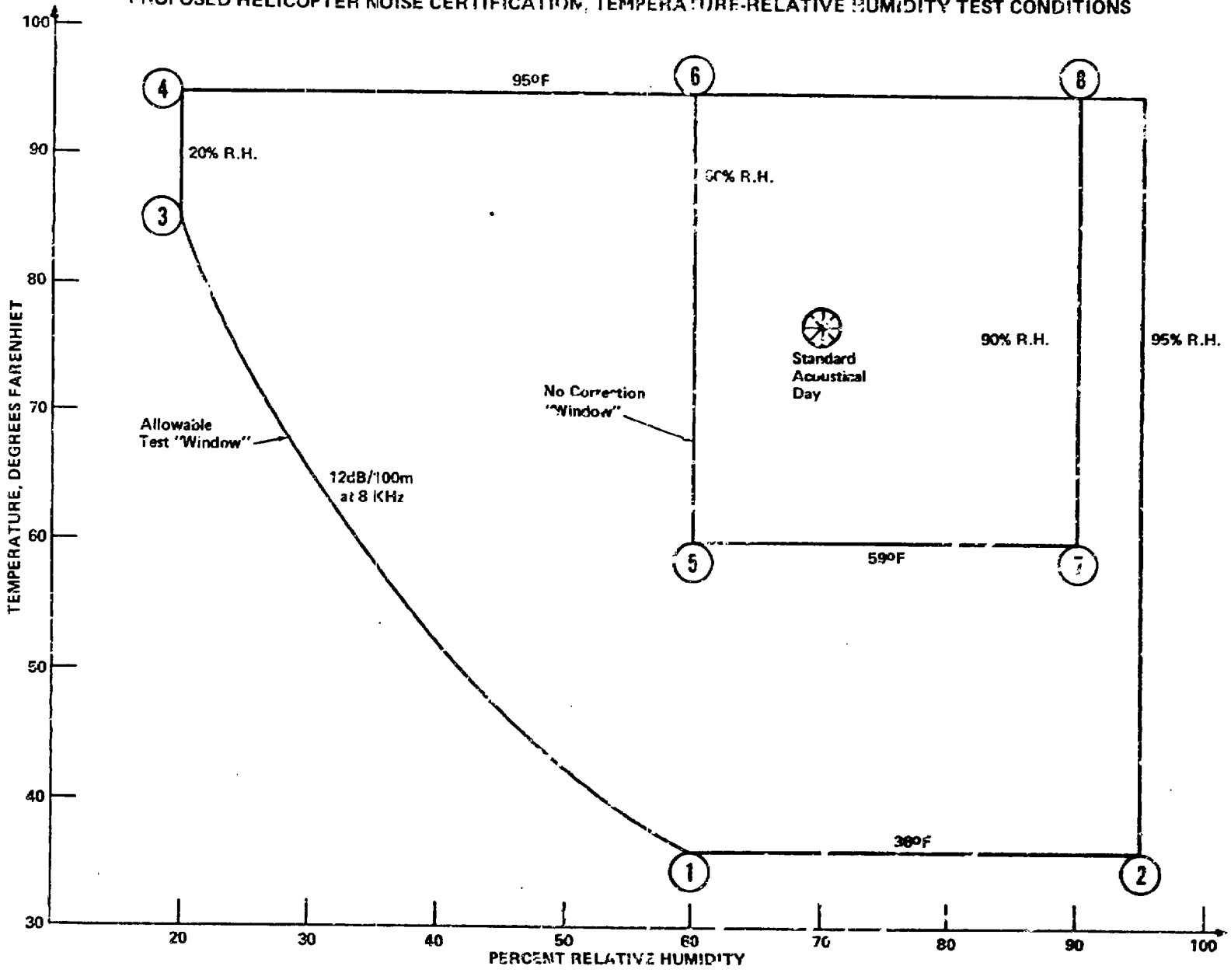
This differential has been computed for the eight temperature relative humidity scenarios listed below.

Scenario	Temperature Degrees F	Relative Humidity %
1	36	60
2	36	95
3	85	20
4	95	20
5	59	60
6	95	60
7	59	90
8	95	90

Scenarios 1 through 4 represent extreme outside points for the certification test "window" proposed for U.S. and ICAO rulemaking (ICAO actually only formulates "standards"). Scenarios 5 through 8 represent extreme points within the "No-Correction" portion of the test window. Figure 7.2.1 shows the test window, no correction window and analysis points.

FIGURE 7.2.1

PROPOSED HELICOPTER NOISE CERTIFICATION, TEMPERATURE-RELATIVE HUMIDITY TEST CONDITIONS



In the following analysis, the "As Measured" EPNL computed for each event and each microphone is used as a starting point. For each of the eight scenarios, it is assumed that the "As Measured" EPNL was acquired under the conditions specified by the scenario (e.g., scenario 1: 36°F 60% RH). At this point, the atmospheric absorption adjustment is introduced. Each of the SPL values comprising the PNLTM spectra is adjusted in accordance with the following relationship:

$$\text{DELTA dB} = SR\,(\alpha_i - \alpha_{io})$$

where α_{io} is the atmospheric absorption coefficient (dB/meter) for the ith frequency band for the standard acoustical day conditions of 77°F and 70 percent RH, and α_i is the atmospheric absorption coefficient (dB/meter) or the ith frequency band for the assumed scenario of temperature and relative humidity. SR is the reference slant distance for each specific rotorcraft at its closest point of approach to the microphone. The adjusted PNLT is then computed. The difference between this adjusted PNLT and the original "As Measured" PNLTM has been determined for each event, for the eight T, RH scenarios. These differential PNLT values (Delta-ones) are used to correct "As Measured" data to standard-day conditions. It has been assumed that a change in PNLTM approximates the change in EPNL. The magnitude of the differential, indirectly reflects the amount of high frequency acoustical energy in an individual helicopter's spectra (arriving at the microphone). This is inferred from the known increase in absorption with increasing frequency. Stated in another way, a helicopter cannot lose high frequency energy content, if it does not have any to start with. In a sense, the atmosphere can be considered to be a low pass filter, sponging up the high frequencies. Thus, the thrust of this analysis becomes two-fold, (1) to evaluate the magnitude of noise level differences associated with deviations from standard acoustical-day conditions, and (2) to identify those helicopters most affected by removal of their high frequency energy.

Tables 7.2.1, 7.2.2, and 7.2.3 present the results of analysis and discussion of observed EPNL differentials using three microphone averages. Individual microphone atmospheric absorption analysis output data are shown in Appendix F.

Table 7.2.1
TAKEOFF: ATMOSPHERIC ABSORPTION ANALYSIS
ADJUSTMENT VALUES FROM SELECTED T/RH
TO 77°F/70% RH

Three Microphone Average: Change in EPNL (dB)

Meteorological Condition (T/RH)

Helicopter	36/60	36/95	85/20	95/20	59/60	95/60*	59/90
SA 330J	2.02	.34	1.94	1.05	.16	.29	-.18
BO 105	1.33	.27	1.33	.85	.13	.26	-.16
CH 53 5/15/78	.82	.10	.84	.55	.03	.20	-.15
S 61	1.5	.25	1.36	.86	.09	.31	-.22
B 206L 6/16	1.17	.17	1.14	.72	.05	.26	-.19
S 212	.82	.12	.85	.59	.07	.28	-.14
H 500C	1.09	.16	1.12	.74	.06	.27	-.18
SA 341G	2.35	.43	2.10	1.29	.11	.50	-.35
Average	1.39	.23	1.34	.83	.09	.30	-.20

* 95/60 and 95/90 exhibit the same results.

In Table 7.2.1, significant observations include the 0.3 dB average benefit afforded helicopters being tested under the Scenario 6 and 8 conditions, 95/60 and 95/90. It is seen that the SA 341G gleans a benefit of 0.5 dB at 95/60 or 95/90. It is also noted that the 36/95 condition results in only a 0.1 dB to .3 dB correction for most helicopters, the exception being the SA 330J and SA 341G exhibiting corrections of 0.3 dB and 0.4 dB, respectively.

Note: It is assumed that the reader will round off all computationally generated decibel values to the tenths place.

TABLE 7.2.2
APPROACH: ATMOSPHERIC ABSORPTION ANALYSIS
ADJUSTMENT VALUES FROM SELECTED T/RH
TO 77°F/70% RH

Three Microphone Average: Change in EPNL (dB)
Meteorological Condition (T/RH)

Helicopter	36/60	36/95	85/20	95/20	59/60	95/60*	59/90
SA 330J	2.51	.57	2.42	1.35	.23	.29	-.15
BO 105	.87	.12	.90	.58	.01	.19	-.16
CH 53 6/15/78	.52	.07	.65	.43	.02	.16	-.11
S 61	1.16	.20	1.12	.70	.07	.25	-.13
B 206L 7/16/78	.63	.04	.65	.42	.01	.15	-.14
B 212	.53	.08	.57	.40	.08	.18	-.12
H 500C	.64	.05	.68	.46	.02	.20	-.13
SA 341G	1.06	.15	1.04	.68	.06	.27	-.16
Average	0.95	0.17	1.00	.63	.06	.21	-.14

95/60 and 95/90 exhibit the same results

In Table 7.2.2, it is seen that the 36/95 scenario results in a very small average correction. This might prompt some to suggest extension of the no correction "window" to include that condition. It may be a reasonable action "on the average" however, in the matter of aircraft noise certification, it would be a most inequitable decision as one helicopter the SA 330J, would be afforded a 0.4 dB competitive advantage over other helicopters. This same phenomenon is observed within the proposed ICAO "no correction window" at 59/60. Here it is observed that the SA 330J would enjoy a 0.2 dB advantage over its competitors.

The 95/60 condition within the no correction window would afford most of the helicopters a 0.3 dB benefit. This would be close to the optimum test condition for most helicopters to maximize "window benefit."

Note: It is assumed that the reader will round off all computationally generated decibel values to the tenths place.

Table 7.2.3
LEVEL FLYOVER: ATMOSPHERIC ABSORPTION ANALYSIS
ADJUSTMENT VALUES FROM SELECTED T/RH
TO 77°F/70% RH
Three Microphone Average: Change in EPNL (dB)

	Meteorological Condition (T°F/%RH)						
Helicopter	36/60	36/95	85/20	95/20	59/60	95/60*	59/90
SA 330J	1.95	1.95	.3	1.03	.13	.35	-.18
BO 105	1.33	.21	1.27	.80	.06	.28	-.19
CH 53 6/15/78	.99	.09	.94	.60	0	.26	-.17
S 61	1.73	.26	1.57	.98	.06	.37	-.26
B 206L 6/16/78	.91	.1	.88	.56	.01	.22	-.17
B 212	.67	.02	.51	.48	0	.20	-.09
H 500C	.96	.11	.97	.64	.03	.22	-.17
SA 341G	2.34	.46	2.10	1.33	.08	.56	-.35
Average	1.36	.40	1.07	.80	.05	.31	-.20

* 95/60 and 95/90 exhibit the same results.

In Table 7.2.3, the 36/95 scenario continues to display very low EPNL differentials for all helicopters except the SA 330J and SA 341G. The 95/60 scenario allows an average benefit of 0.3 dB while permitting the SA 341G a benefit of 0.6 dB.

Note: It is assumed that the reader will round off all computationally generated decibel values to the tenths place.

7.3 SPEED CORRECTION ANALYSIS

Variation of the rotorcraft speed (V_T) from the reference airspeed (V_R) results in the following consequences:

1. A change in the duration between the 10 dB down points of the PNLT time history.

2. A change in the intensity and frequency spectra of the sound radiated from the helicopter resulting in:

   a. changes in the source level
   b. changes in the directivity pattern of the source

In the case of conventional aircraft where the sound characteristics are less likely to vary significantly with speed, variations from reference speed and the resulting change in the duration correction are theoretically accounted for by utilizing the following relationship:

$$\text{DELTA dB} = 10 \log (V_T/V_R)$$

This correction is applied directly to the computed value of EPNL.

As a helicopter changes its speed, other parameters begin to change (e.g., blade-loading and advancing tip mach number) producing unique hyperbolically shaped, EPNL/speed relationships. This trend reported in FAR-RD-77-94 reflects: (1) high power requirements at low speed, (2) diminishing power requirements as speed increases, and (3) increading power requirements as speed continues to increase. An alternative methodology for quantifying the influence of speed on EPNL requires the use of correction curves developed from actual field measurements of EPNL at several different speeds. A sample of at least four flyovers at each speed is recommended in order to establish a mean value and an estimate of the variability. Data have been presented in FAA-RD-77-94 portraying airspeed/EPNL relationships for a limited number of helicopters performing level flyovers. The analysis shown below demonstrates the extent of error one can encounter when using the 10 log (V_T/V_R) relationship rather than speed trial curves such as those shown in FAA-RD-77-94.

Helicopter	V_R*	Speed Trial Curves Delta EPNL V_R + 5 knots	10 log (V_T/V_R) Delta EPNL V_R + 5
Bell 206-L	99.4 Kt.	-.17	+.21
Bell 212	95.4 Kt.	+.70	+.22
Hughes 500C	112.5 Kt.	+.46	+.18
Hughes 300C	74.3 Kt.	-.20	+.28
Sikorsky S-61	108.0 Kt.	+.08	+.19
Sikorsky S-64	85.5 Kt.	+.67	+.25

It is seen that differences up to 0.5 dB are observed for 5 knot deviations.

Conclusion

The use of speed trial data is recommended as the appropriate means of assessing the change in EPNL associated with deviations in helicopter speed from reference conditions.

Recommendations

1. Monitor winds aloft during speed trial tests in order to assure that the indicated airspeed is representative of the groundspeed.

2. Conduct enough tests at each speed in order to establish reasonable statistical confidence in the trend line (curve).

*NOTE: VR data have been provided by the helicopter manufacturers.

7.4 EPNL DURATION CORRECTION ANALYSIS

The lengthening or shortening of an aircraft flyover (10 dB down) PNLT time history which results from the deviation of the helicopter from the reference flight path is theoretically accounted for by application of the "delta two," duration correction. The correction computed as $dB = 10 \log (CPA_R/CPA_T)$ (where CPA_R and CPA_T represent the closest point of approach for reference and test, respectively) has been applied to each event in this noise measurement program. The distribution of this data has been plotted for each helicopter for each operational mode and is shown in Figure 7.4.1. Important observations include:

The approach (A) runs appear to have all been flown slightly above the reference 6 degree glide slope as indicated by the uniformly negative correction values. Most correction values for the approach runs fell between 0 and -0.5 dB.

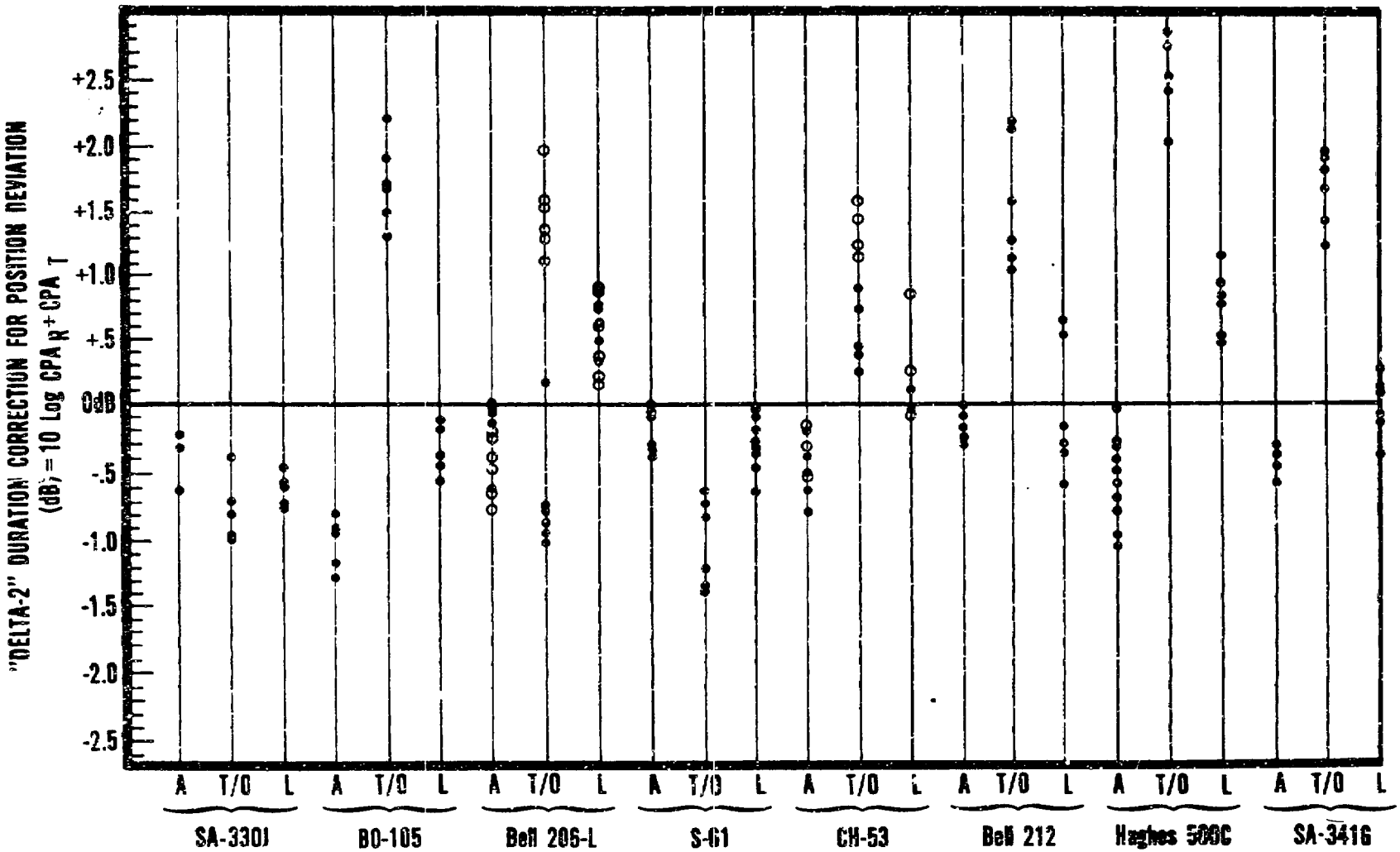
The takeoff (T/O) runs exhibit the greatest deviation from reference flight path conditions resulting in corrections as high as +2.5 and as low as -1.5 dB. The dispersion of data points for a given helicopter type for takeoffs is generally greater than the dispersion of points for the approach and level flyover conditions. Further, for six out of eight test helicopters, the correction was positive in value averaging about +1.5 dB.

The level flyovers were characterized by position deviations slightly larger than those observed for the approach runs varying between +1 to -1 dB with most points falling within ±.5 dB. The dispersion of points in general appears slightly larger for level flyovers than for approaches.

Considering event duration alone, (in accordance with theory) one finds a +0.3 dB correction associated with a +10m deviation from a 120m reference position or a +0.5 dB correction for a + 14.6m deviation.

FIGURE 7.4.1

DURATION CORRECTION ANALYSIS



Legend:

CPA - closest point of approach
T: Test
R: Reference
T/O: Takeoff
A: Approach
L: Level Flyover

Note:

Dots represent first test day data
Circles represent second test day data

REFERENCES

1. True, H. C. and Rickley, E. J., "Noise Characteristics of Eight Helicopters," FAA-RD-77-94, July 1977

2. Working Group B, International Civil Aviation Organization Committee on Noise, "Working Paper 25" developed at the Tokyo meeting December 1978

3. Jane's All The World's Aircraft, 1975-1976

4. Jane's All The World's Aircraft, 1977-1978

APPENDICES

Appendix Description

Appendix A contains cockpit photograph information and defines reference operational parameters. Tables within the Appendix are labeled by test series number (i.e., A.1, A.2, A.3, etc.), as shown below.

Appendix B contains "As Measured" data with application of EPNL tone corrections from 800 Hz to 10 KHz. Data are presented for all five microphones.

Appendix C contains "Corrected" data; the Appendix B data corrected for atmospheric absorption and position differences from reference conditions. Data are presented for CL-C, SL-S, and SL-N microphones.

Appendix D contains "As Measured" data with application of EPNL tone corrections from 50 Hz to 10 KHz. Data are presented for CL-C, SL-S, and SL-N microphones.

Appendix E contains individual event takeoff trajectory data. Figures are labeled by test series number and event sequence (i.e., E.1.1, E.1.2, E.1.3, etc.).

Appendix F contains the results of the Atmospheric Absorption Analysis. Data are presented for CL-C, SL-S, and SL-N microphones.

The tables within each appendix are identified by test series number and microphone location as follows:

Test Series

1. SA-330J, June 12
2. BO-105, June 12 (Note: Bolkow appears as Boelkow in data tables)
3. Bell 206-L, June 13
4. S-61, June 14
5. CH-53, June 14
6. Bell 212, June 15
7. CH-53, June 15
8. SA 341G, June 15 (Note: SA 341G appears as SA-314G in data tables)
9. Bell 206-L, June 16
10. Hughes 500C, June 16

Microphone Location

a. centerline-center, CL-C
b. sideline south, SL-S
c. sideline north, SLN
d. centerline east, CL-E
e. centerline west, CL-W

As an example, Table B.7.d contains "As Measured" EPNL data (tone 800 Hz to 10 KHz) for the CH-53 on June 15 at the centerline east (CL-E) microphone location.

APPENDIX A

COCKPIT DATA/REFERENCE AIRSPEED/REFERENCE OPERATION

Appendix A contains cockpit photograph information and defines reference operational parameters. Tables within the appendix are labeled by test series number.

Table A.1

Cockpit Data

Helicopter: PUMA
Test Date: 6/12/78

Event/Time	Rotor RPM	Airspeed/Knots
APPROACH		
6:01:16	273	68
6:06:10	273	69
11:04	273	64
16:28	273	69
20:52	273	65
24:43	273	66
28:29	273	68
TAKEOFF		
6:31:52	269	75
38:09	268	71
43:41	268	70
46:34	268	69
49:29	268	72
52:50	268	70
56:23	268	67
59:25	268	70
FLYOVER		
7:02:20	270	112
05:42	270	113
07:52	270	112
11:20	270	114
13:47	270	117
17:06	270	113

Reference Airspeed and Operation

Approach: 70 knots, 6 degree slope
Takeoff: 70 knots/rate of climb 1175 feet per minute
Level Flyover: 125 knots

Table A.2

Helicopter: BO-105
Test Date: 6/12/78

Event/Time	Rotor RPM Percent	Airspeed/Knots
CLIMBOUT		
7:53:58	100	67
54:09	100	63
57:24	100	71
8:04:02	100	67
07:32	100	60
11:27	100	67
15:24	100	69
APPROACH		
21:16	100	62
26:24	100	68
34:14	100	60
38:40	100	59
TAKEOFF		
44:10	100	104
47:04	100	104
49:52	100	102
51:10	100	101

Reference Airspeed and Operation

Approach: 60 knots, 6 degree slop
Takeoff: 60 knots/Rate of Climb, 1700 feet per minute
Level Flyover: 119 knots

Table A.3

Helicopter: 206L
Test Date: 6/13/78

Event/Time	Rotor RPM Percent	Airspeed/mph
TAKEOFF		
Clock Blocked	100	60
5:40:23	100	63
43:41	100	57
Too dark		
Blocked	100	55
5:49:36	100	60
53:38	100	61
APPROACH		
6:01:27	100	54
07:22	100	55
13:29	100	58
23:16	100	59
29:36	100	60
34:52	100	60
FLYOVER		
37:52	100	116
40:18	100	127
42:52	100	136
45:09	100	134
46:03	100	135
46:34	100	136

Reference Airspeed and Operation

Approach: 60 mph, 6 degree slope
Takeoff: 60 mph/Rate of Climb, 1380 feet per minute
Level Flyover: 135 mph

Table A.4

Helicopter: S-61$_L$ (H-3)
Test Date: 6/14/78

Event/Time	Rotor RPM Percent	Airspeed/Knots
TAKEOFF		
5:22:28	102	82
5:25:38	102	74
27:43	102	77
31:32	102	76
34:13	102	76
37:37	102	74
APPROACH		
41:35	105	74
41:40	105	72
44:43	103	74
47:47	104	74
51:55	104	75
6:00:23	104	70
04:39	104	71
08:53	104	70
13:08	104	69
FLYOVER		
16:08	103	133
18:02	103	132
Too dark		
22:00	103	130
26:09	103	132
28:25	103	133
29:09	103	135
6:32:25	103	115 *
34:54	103	100 *
37:33	103	88 *
40:36	104	65 *

Reference Airspeed and Operation

Approach: 74 knots, 6 degree slope
Takeoff: 74 knots/Rate of Climb, 1100 feet per minute
Level Flyover: 129 knots

* Denotes speed trial

Table A.5

Helicopter: CH-53
Test Date: 6/14/78

Event/Time	Rotor RPM Percent	Airspeed/Knots
APPROACH		
8:01:27	103	
06:04	103	82
13:18	103	91
17:52	103	80
22:36	103	88
		78
TAKEOFF		
39:15	102	
44:26	102	83
51:38	102	82
9:01:52	102	83
06:48	102	85
11:42	102	85
16:28	102	89
21:30	102	87
		87
FLYOVER		
24:15	102	
26:10	102	145
29:56	102	148
		149

Reference Airspeed and Operation

Approach: 76 knots, 6 degree slope
Takeoff: 76 knots/Rate of Climb, 1800 feet per minute
Level Flyover: 130 knots

Table A.6

Helicopter: Bell 212, (H-1)
Test Date: 6/15/78

Event/Time	Rotor RPM Percent	Airspeed/Knots
TAKEOFF		
5:16:42	100	62
21:35	100	56
25:26	100	58
29:47	100	61
34:12	100	58
39:43	100	55
APPROACH		
42:39	100	59
48:10	100	64
53:15	100	51
58:52	100	56
6:06:39	100	59
12:16	100	61
17:04	100	56
FLYOVER		
21:03	100	107
23:30	100	108
26:03	100	111
28:23	100	106
31:10	100	106
34:56	100	107

Reference Airspeed and Operation

Approach: 55 knots, 6 degree slope
Takeoff: 55 knots/Rate of Climb, 1350 feet per minute
Level Flyover: 94 knots

Table A.7

Helicopter: CH-53
Test Date: 6/15/78

Event/Time	Rotor RPM Percent	Airspeed/Knots
TAKEOFF		
6:55:40	103	95
7:00:30	103	90
07:10	103	85
12:40	103	82
15:05	103	87
29:17	103	86
FLYOVER		
34:47	102	149
37:53	102	154
39:45	102	151
APPROACH		
42:51	102	82
47:20	102	91
51:30	101	80

Reference Airspeed and Operation

Approach: 76 knots, 6 degree slope
Takeoff: 76 knots/Rate of Climb, 1800 feet per minute
Level Flyover: 130 knots

Table A.8

Helicopter: Gazelle, SA-341G
Test Date: 6/15/78

Event/Time	Rotor RPM Percent	MPH
TAKEOFF		
8:16:50	100	85
20:49	100	87
24:35	100	93
28:20	100	96
32:15	100	90
40:53	100	93
APPROACH		
49:57	100	80
53:50	100	81
57:56	100	75
9:01:58	100	80
05:55	100	81
FLYOVER		
10:01	100	82
14:03	100	147
16:48	100	148
22:01	100	150
25:08	100	150
31:34	100	154

Reference Airspeed and Operation

Approach: 75 mph, 6 degree slope
Takeoff: 75 mph/Rate of Climb, 1378 feet per minute
Level Flyover: 147 mph

Table A.9

Helicopter: 206L
Test Date: 6/16/78

Event/Time	Rotor RPM Percent	MPH
TAKEOFF		
5:12:48	98	65
16:30	99	67
20:44	100	63
24:47	100	63
28:55	100	64
33:13	100	63
APPROACH		
38:26	100	70
42:48	100	63
46:53	101	63
Missing	100	67
6:01:23	100	64
06:52	101	64
FLYOVER		
20:47	100	123
24:02	100	135
26:25	100	138
29:30	100	135
31:55	100	136

Reference Airspeed and Operation

Approach: 60 mph, 6 degree slope
Takeoff: 60 mph/Rate of Climb, 1380 feet per minute
Level Flyover: 135 mph

Table A.10

Helicopter: Hughes 500-C
Test Date: 6/16/78

Event/Time	Rotor RPM Per ent	Knots
TAKEOFF		
6:57:46	103	58
7:01:14	103	62
04:35	103	58
07:58	103	58
11:12	103	59
14:36	103	60
18:03	103	55
APPROACH		
24:34	103	53
36:58	103	58
41:04	103	58
45:31	103	63
49:36	103	61
53:16	103	64
53:29	103	62
53:33	103	60
53:39	103	62
56:31	103	56
56:37	103	58
56:41	103	62
59:25	103	62
59:31	103	61
59:41	103	63
FLYOVER		
8:01:52	103	122
04:43	103	123
05:20	103	118
06:53	103	125
08:22	103	117
10:10	103	124
10:13	103	124
11:45	103	121
APPROACH		
14:40	103	63
14:47	103	62
14:52	103	60

Reference Airspeed and Operation

Approach: 50 knots, 6 degree slope
Takeoff: 50 knots/Rate of Climb, 1440 feet per minute
Level Flyover: 118 knots

APPENDIX B

Appendix B contains "As Measured" data with application of EPNL tone corrections from 800 Hz to 10 KHz. Data are presented for all five microphones.

Table B.1.a

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
7/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/12/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
1	98.7	87.2	94.0	97.2	100.6	101.9	11.0	1.3	0606:10.8
3	96.2	82.2	89.0	92.7	96.2	97.5	17.0	1.3	0616:25.8
4	97.9	84.5	91.3	94.9	98.0	99.0	19.0	1.1	0620:41.3
5	97.2	83.3	90.2	93.7	97.0	98.5	20.5	1.5	0624:37.3
6	97.6	83.9	90.9	94.4	97.8	99.4	17.0	1.6	0628:23.3
TAKEOFF									
7	95.1	84.0	89.3	87.4	96.1	97.7	12.0	1.6	0643:32.3
8	94.1	82.7	87.7	86.6	94.5	95.8	14.0	1.7	0646:24.8
9	94.9	84.9	90.3	89.3	97.3	97.9	11.5	1.0	0649:19.8
10	93.8	82.3	87.6	86.5	94.4	95.2	15.0	1.2	0652:41.3
11	94.2	82.9	88.1	86.9	94.9	96.2	14.0	1.6	0656:14.3
12	95.7	85.6	91.5	88.9	98.5	100.1	8.5	1.6	0659:17.3
LEVEL FLY-BY WEST TO EAST									
13	89.6	82.7	86.9	86.7	93.4	94.6	8.0	1.2	0702:35.3
15	89.1	82.1	86.3	86.1	92.7	93.6	8.5	1.2	0708:01.3
17	90.3	84.0	87.9	87.7	94.2	95.1	7.5	0.8	0713:57.3
LEVEL FLY-BY EAST TO WEST									
14	91.7	83.1	87.2	86.7	93.8	95.1	10.0	1.3	0705:35.8
16	91.6	83.5	87.1	87.2	93.6	94.5	9.5	0.9	0711:05.8
18	89.9	80.3	84.8	87.9	91.5	91.9	12.5	0.6	0717:00.2

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.1.b

PUMA SA-330J HELICOPTER (FRENCH)

SUMMARY NOISE LEVEL DATA

AS MEASURED *

DOT/TSC
7/26/78

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 12, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
1	95.7	81.5	87.1	89.0	94.3	95.9	17.5	2.1	0606:06.8
3	93.6	80.4	85.1	85.9	91.9	93.6	23.0	1.7	0616:26.3
4	93.9	80.2	85.5	87.8	92.9	94.3	19.5	1.6	0620:42.3
5	93.7	80.1	84.9	86.5	91.7	93.0	24.0	1.3	0624:40.8
6	94.2	80.8	85.7	86.6	92.5	93.9	20.0	1.4	0628:25.3
TAKEOFF									
7	94.3	83.3	87.6	86.8	94.3	95.6	16.5	1.3	0643:35.3
8	94.2	83.0	87.3	86.4	93.8	95.1	19.0	1.2	0646:26.3
9	95.5	84.9	89.1	88.3	96.3	97.6	15.5	1.4	0649:21.3
10	94.2	82.3	86.8	85.8	93.3	94.6	20.0	1.3	0652:41.8
11	94.3	83.1	87.4	86.5	94.1	95.C	20.0	1.0	0656:15.8
12	95.1	83.8	88.C	87.5	95.2	96.2	17.5	1.0	0659:18.8
LEVEL FLY-BY WEST TO EAST									
13	91.6	81.9	86.6	89.0	93.2	94.1	11.0	0.9	0702:35.3
15	91.6	81.5	86.1	89.4	92.8	93.7	10.5	0.9	0708:02.3
17	91.9	82.6	87.4	89.9	94.3	95.2	9.0	0.9	0713:57.3
LEVEL FLY-BY EAST TO WEST									
14	91.3	81.5	85.6	86.1	92.2	93.7	13.C	1.6	0705:37.8
16	90.8	80.2	84.6	85.3	91.2	92.4	13.5	1.3	0711:07.8
18	92.0	82.6	86.6	86.6	93.9	94.9	11.0	1.1	0717:01.8

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.1.c

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
7/28/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
1	95.2	81.5	86.8	88.3	94.6	96.3	16.5	1.7	0606:06.3
3	94.7	81.2	85.8	88.1	93.2	94.9	19.0	1.9	0616:25.8
4	94.7	80.7	85.6	87.6	92.9	94.7	20.0	1.8	0620:40.3
5	95.1	80.7	85.5	87.3	93.0	94.9	22.5	1.9	0624:38.3
6	94.8	81.3	86.0	87.3	93.4	95.1	18.5	1.7	0628:25.3
TAKEOFF									
7	94.8	84.3	88.3	88.5	95.6	96.6	15.0	1.1	0643:33.3
8	94.8	84.0	87.9	88.3	95.1	96.1	17.0	1.0	0646:25.3
9	95.2	84.9	88.9	88.9	96.2	97.2	14.5	1.0	0649:20.3
10	94.9	83.6	87.4	87.4	94.6	95.7	18.5	1.1	0652:42.8
11	94.5	83.2	87.2	87.4	94.4	95.5	18.5	1.1	0656:15.3
12	95.0	85.3	89.4	89.2	96.3	97.3	16.0	1.0	0659:17.8
LEVEL FLY-BY WEST TO EAST									
13	89.6	79.8	83.7	84.8	90.6	91.8	11.5	1.1	0702:36.8
15	89.8	80.2	84.4	84.7	91.6	92.9	9.5	1.3	0708:02.3
17	90.1	80.5	84.7	85.3	91.5	92.8	10.0	1.3	0713:59.3
LEVEL FLY-BY EAST TO WEST									
14	91.9	82.8	87.0	90.2	94.5	95.4	9.5	0.9	0705:37.3
16	91.7	82.4	86.9	89.5	94.0	95.0	11.5	1.0	0711:07.3
18	91.3	80.7	84.9	87.5	91.6	92.7	14.5	1.2	0717:01.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.1.d

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
1	99.1	85.8	92.4	95.5	99.3	100.7	15.5	1.4	0606:04.8
3	95.1	81.7	88.1	91.4	95.0	95.9	17.5	1.5	0616:19.3
4	96.9	83.3	89.0	91.4	95.8	97.1	20.0	1.3	0620:33.8
5	96.5	83.2	89.6	92.5	96.8	98.5	15.5	1.7	0624:31.8
6	97.0	85.0	91.7	94.7	98.1	99.1	17.0	1.2	0628:17.8
TAKEOFF									
7	96.8	87.5	92.6	92.6	99.6	101.1	8.0	1.6	0643:28.3
8	95.8	86.5	91.4	91.9	98.7	100.0	8.5	1.3	0646:20.8
9	96.9	88.2	93.2	92.5	100.3	101.4	8.5	1.3	0649:14.8
10	95.9	86.4	91.6	91.6	98.6	99.8	10.0	1.3	0652:36.8
11	96.4	86.4	91.5	91.2	98.6	99.9	9.5	1.3	0656:10.8
12	96.9	87.6	92.8	91.0	99.7	101.2	8.5	1.6	0659:12.8
LEVEL FLY-BY WEST TO EAST									
13	90.7	83.1	86.6	87.8	93.0	94.4	9.0	1.4	0702:35.8
15	89.7	83.1	87.0	87.3	93.1	93.8	8.5	0.7	0708:02.8
17	91.2	84.5	88.1	88.6	94.1	95.6	7.5	1.4	0613:58.8
LEVEL FLY-BY EAST TO WEST									
14	92.5	83.4	88.2	86.7	94.9	95.7	9.5	0.8	0705:32.8
16	92.4	83.8	87.8	86.9	94.1	94.9	9.5	0.8	0711:02.8
18	90.9	81.6	86.5	89.2	93.0	93.7	11.0	0.7	0716:56.3

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.1.e

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
8/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
1	99.2	87.2	93.7	96.3	101.2	102.7	11.0	1.5	0606:14.3
3	97.5	83.8	90.6	93.8	98.0	99.4	16.0	1.4	0616:30.3
4	99.6	87.3	94.1	97.5	100.5	101.4	14.0	1.3	0620:45.8
5	99.1	86.4	93.1	96.2	99.5	100.9	17.0	1.4	0624:42.3
6	98.0	84.9	91.4	94.5	98.6	100.1	14.5	1.5	0628:28.3
TAKEOFF									
7	92.9	81.3	85.9	84.9	92.6	94.4	16.0	1.8	0643:35.8
8	91.7	80.1	84.4	84.2	90.9	92.3	19.0	1.8	0646:27.8
9	92.6	81.3	86.0	86.4	92.8	94.0	15.0	1.4	0649:22.8
10	91.4	79.7	84.0	84.1	90.7	91.8	20.5	1.5	0652:45.3
11	91.8	79.1	83.8	84.1	90.5	91.8	22.0	1.8	0657:18.3
12	93.3	82.3	87.4	86.2	94.1	95.9	13.0	1.8	0659:19.8
LEVEL FLY-BY WEST TO EAST									
13	89.9	82.9	86.3	87.0	92.6	93.9	8.5	1.3	0702:32.3
15	90.3	82.4	86.5	86.6	92.9	94.4	8.0	1.4	0707:58.3
17	90.8	84.5	88.5	87.9	94.8	96.1	7.0	1.3	0713:54.3
LEVEL FLY-BY EAST TO WEST									
14	92.3	83.4	87.7	86.8	94.4	95.3	10.5	0.9	0705:38.8
16	92.1	83.6	87.5	87.2	93.7	94.7	10.5	1.4	0711:08.3
18	89.9	79.9	84.3	88.2	91.5	91.7	13.0	0.2	0717:02.3

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.2.a

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
7/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/12/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	93.0	82.9	87.0	89.3	93.7	93.9	22.5	0.2	0821:03.3
26	93.3	83.0	87.4	89.6	94.1	94.3	20.5	0:2	0826:09.8
27	94.1	85.7	89.7	91.0	96.5	96.7	15.0	0.2	0830:38.8
28	93.0	84.2	88.0	89.6	94.7	95.2	15.0	0.5	0834:47.8
29	93.4	84.7	88.7	90.2	95.6	95.8	15.5	0.2	0839:28.8
30	93.2	85.5	89.5	91.0	96.1	96.4	12.0	0.3	0843:59.3
TAKEOFF									
19	91.5	81.1	86.8	88.2	94.1	94.3	12.0	0.2	0748:45.3
20	90.1	79.5	84.9	87.2	92.3	92.6	13.5	0.3	0753:57.3
21	89.9	79.5	84.7	87.0	91.9	92.1	13.5	0.2	0803:52.8
22	89.8	78.7	84.2	86.9	91.4	91.8	17.0	0.4	0807:23.3
23	89.7	78.5	84.2	86.5	91.7	92.0	14.0	0.4	0811:17.8
24	89.3	78.0	83.5	85.7	90.9	91.1	14.0	0.3	0815:14.3
LEVEL FLY-BY WEST TO EAST									
31	88.3	79.9	85.4	88.2	91.9	92.1	9.0	0.2	0847:29.8
33	88.2	79.5	84.9	87.7	91.6	92.0	9.5	0.4	0851:36.3
34	87.8	79.5	85.0	87.5	91.4	91.8	8.5	0.4	0907:27.8
36	87.6	79.5	84.8	87.4	91.1	91.3	8.5	0.2	0912:05.3
38	87.9	79.4	84.7	88.0	91.0	91.2	8.5	0.2	0917:36.8
LEVEL FLY-BY EAST TO WEST									
32	88.5	79.9	85.1	87.9	91.4	91.6	10.0	0.2	0849:43.3
35	87.5	78.8	83.9	86.5	90.2	90.5	10.5	0.3	0909:22.8
37	88.9	80.2	85.5	88.6	91.8	92.0	18.5	0.2	0914:59.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.2.b

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
7/26/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	88.7	75.6	79.9	82.3	86.8	87.1	28.0	0.3	0821:01.3
26	89.4	76.4	80.5	83.1	87.3	87.9	33.0	0.5	0826:12.3
27	89.1	74.6	79.6	83.6	87.0	87.3	38.0	0.4	0830:38.3
28	88.5	75.3	80.3	82.5	87.5	87.9	37.0	0.4	0834:47.8
29	88.7	75.0	79.9	82.4	86.7	86.9	34.5	0.2	0839:30.3
30	88.3	74.8	80.1	82.8	87.3	87.5	31.5	0.5	0843:58.8
TAKEOFF									
19	87.7	77.3	81.4	84.9	88.2	88.4	17.0	0.1	0748:46.3
20	88.0	75.4	80.2	84.1	87.1	87.8	20.5	0.7	0753:55.3
21	88.1	76.4	80.8	84.2	87.8	88.1	19.5	0.4	0803:54.3
22	-	75.2	79.5	84.3	86.6	87.1	-	1.4	0807:21.8
23	87.5	75.9	80.2	84.2	87.4	87.7	19.0	0.4	0811:19.3
24	-	75.6	80.2	83.7	87.3	87.8	-	1.0	0815:16.3
LEVEL FLY-BY WEST TO EAST									
31	86.6	78.1	82.4	85.8	88.6	89.2	11.0	0.6	0847:30.8
33	86.8	77.6	82.1	85.3	88.5	89.7	12.0	1.2	0851:36.8
34	87.0	78.5	82.8	86.4	89.3	89.7	10.0	0.4	0907:28.8
36	87.0	77.8	82.2	85.8	88.6	89.0	12.0	0.5	0912:06.8
38	87.1	78.5	82.5	87.0	88.7	89.1	13.0	0.6	0917:37.8
LEVEL FLY-BY EAST TO WEST									
32	88.0	77.5	82.7	85.8	90.2	90.5	14.0	0.3	0849:43.3
35	88.4	77.5	82.6	85.7	90.0	90.2	15.5	0.2	0909:22.8
37	88.8	79.2	83.6	87.9	90.8	91.0	14.0	0.3	0915:00.2

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.2.c

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	88.7	76.4	81.7	86.7	88.1	88.5	23.5	0.4	0821:03.8
26	88.7	76.6	81.4	86.7	88.3	88.9	29.5	0.6	0826:10.8
27	91.7	78.5	83.3	87.7	90.0	90.6	27.0	1.3	0830:43.3
28	90.6	77.8	82.2	87.5	89.0	89.5	24.5	1.3	0834:47.3
29	90.9	78.7	83.2	88.1	89.7	90.3	25.0	1.0	0839:28.3
30	90.7	78.6	83.1	87.7	90.0	91.2	22.0	1.3	0843:59.3
TAKEOFF									
19	89.1	78.5	83.5	90.6	90.2	91.8	15.5	1.7	0748:45.8
20	88.3	75.9	81.0	88.6	88.0	89.4	21.0	1.3	0753:58.3
21	88.3	76.9	81.7	88.5	88.5	89.9	19.5	1.5	0803:53.3
22	88.0	76.7	81.7	88.6	88.6	90.2	18.0	1.7	0807:24.3
23	-	76.8	81.7	87.7	88.6	90.0	-	1.5	0811:18.3
24	-	76.8	81.6	87.4	88.4	89.1	-	0.8	0815:15.8
LEVEL FLY-BY WEST TO EAST									
31	87.6	78.1	82.8	86.6	90.3	90.8	11.5	0.4	0847:28.8
33	87.5	78.3	83.0	86.6	90.4	90.7	13.5	0.3	0851:35.8
34	87.0	77.1	81.7	86.4	89.0	89.3	12.5	0.4	0907:27.8
36	87.2	77.8	82.8	86.6	90.0	90.2	11.5	0.3	0912:04.8
38	88.2	78.5	82.4	87.0	89.4	89.9	11.5	2.4	0917:34.3
LEVEL FLY-BY EAST TO WEST									
32	87.3	77.9	82.3	85.8	88.7	89.1	14.0	0.4	0849:44.8
35	87.1	77.0	81.2	84.5	87.4	88.2	21.5	0.8	0909:22.8
37	87.9	78.3	82.7	87.2	89.3	89.5	18.0	0.3	0915:01.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

R

Table B.2.d

BOELKOW BO-105 HELICPTER (GERMAN)

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	91.8	82.9	86.9	89.0	94.0	94.5	15.0	0.5	0820:55.3
26	92.7	82.1	86.3	88.7	93.2	93.6	21.0	0.4	0826:01.8
27	93.6	82.9	87.0	89.0	93.7	93.9	21.0	0.2	0830:31.8
28	92.7	84.1	88.0	89.5	94.2	94.4	17.5	0.2	0834:43.8
29	93.6	84.1	87.9	89.5	94.2	94.4	19.0	0.3	0839:23.8
30	----------		NO DATA AVAILABLE				----------		
TAKEOFF									
19	93.3	84.6	90.0	91.2	97.3	97.6	8.5	0.3	0748:40.3
20	92.2	83.0	88.4	89.9	95.8	96.2	9.0	0.4	0753:51.8
21	91.8	82.1	87.3	88.8	94.4	94.9	12.0	0.9	0803:45.8
22	91.7	82.6	88.3	89.9	95.4	95.9	10.0	0.5	0807:17.3
23	-	82.2	87.8	89.2	95.2	95.5	-	0.3	0810:11.8
24	91.6	82.0	87.5	89.1	94.7	95.4	11.5	0.7	0815:08.3
LEVEL FLY-BY WEST TO EAST									
31	88.9	80.8	86.2	88.9	92.9	93.1	7.5	0.2	0847:31.8
33	88.4	79.7	85.1	88.0	91.7	92.0	9.5	0.4	0851:37.8
34	----------		NO DATA AVAILABLE				----------		
36	88.8	80.9	86.2	88.4	92.4	92.7	8.0	0.3	0912:06.8
38	88.7	80.8	86.1	88.2	92.3	92.6	9.0	0.3	0917:38.8
LEVEL FLY-BY EAST TO WEST									
32	89.0	80.4	85.7	88.2	92.4	92.7	9.5	0.3	0849:38.8
35	----------		NO DATA AVAILABLE				----------		
37	90.3	82.1	87.0	89.1	93.6	93.8	9.5	0.3	0914:56.8

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.2.e

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
8/ 7/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	93.6	83.5	87.7	89.5	94.3	94.5	19.5	0.3	0821:07.3
26	92.7	82.6	86.5	88.6	93.7	94.0	19.5	0.3	0826:10.8
27	94.1	85.3	89.2	90.6	95.7	95.9	18.0	0.2	0830:42.8
28	93.3	84.2	88.1	89.0	94.8	95.0	18.5	0.3	0834:52.8
29	93.4	84.6	88.6	90.2	95.2	95.5	18.0	0.3	0839:33.3
30	92.6	83.0	86.9	89.0	93.8	94.4	16.0	0.5	0844:02.8
TAKEOFF									
19	89.2	79.0	83.8	86.3	90.7	91.1	14.0	0.4	0748:49.3
20	89.6	78.2	83.8	85.6	90.9	91.3	15.0	0.3	0754:01.3
21	89.1	78.7	83.9	85.9	91.2	91.5	14.5	0.3	0803:54.8
22	88.4	77.0	82.5	84.5	89.5	89.9	18.0	0.4	0807:25.8
23	88.4	77.4	82.5	84.5	89.8	90.1	15.0	0.3	0810:20.3
24	88.2	77.2	82.2	84.2	89.1	89.6	17.0	0.5	0815:17.3
LEVEL FLY-BY WEST TO EAST									
31	87.7	80.1	85.3	87.9	91.8	92.0	8.0	0.2	0847:26.8
33	87.5	79.4	84.7	87.5	91.2	91.5	9.0	0.3	0851:34.3
34	87.1	78.2	83.7	86.8	89.9	90.3	10.0	0.4	0907:24.8
36	87.0	79.0	84.3	86.9	90.7	91.0	9.0	0.3	0912:01.8
38	87.3	79.4	84.8	87.5	91.2	91.4	8.5	0.2	0917:33.8
LEVEL FLY-BY EAST TO WEST									
32	88.0	79.2	84.6	87.6	91.1	91.4	10.0	0.3	0849:45.8
35	87.2	78.0	83.3	85.9	89.7	90.0	11.0	0.3	0909:25.8
37	88.5	80.3	85.5	88.4	91.8	92.0	9.0	0.4	0915:02.8

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.3.a

BELL 206L HELICOPTER

DOT/TSC
7/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/13/78

EVENT	EPNL	DBA(M)	DBD(M)	UASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	91.8	78.9	83.4	86.6	90.8	91.1	41.0	0.3	0601:20.3
8	92.6	79.6	83.7	86.3	90.9	91.2	51.5	0.2	0607:13.3
9	92.8	80.3	84.9	89.3	91.8	92.1	27.5	0.4	0613:21.3
10	-	76.9	82.8	87.1	89.1	89.3	-	0.1	0623:21.3
11	92.7	78.3	83.4	88.0	90.1	90.7	43.0	0.9	0629:27.8
12	91.7	80.0	84.0	86.1	90.5	90.9	33.5	0.5	0634:47.8
TAKEOFF									
1	85.4	72.4	77.4	78.9	83.9	84.1	38.0	0.2	0534:14.8
2	-	70.2	75.8	79.5	83.0	83.2	-	0.3	0540:20.8
3	-	69.6	75.0	79.0	81.9	82.1	-	0.2	0543:38.8
4	87.2	74.1	79.4	80.2	85.0	85.7	35.5	0.7	0546:10.3
5	85.9	69.5	75.0	79.6	81.7	82.4	63.0	0.9	0550:35.8
6	-	69.8	75.1	78.8	81.9	82.1	-	0.2	0554:16.3
LEVEL FLY-BY WEST TO EAST									
13	85.0	74.9	80.5	83.1	87.8	88.0	12.0	0.2	0637:49.8
15	86.3	75.3	80.6	84.3	87.9	88.2	15.0	0.3	0642:50.8
17	86.0	77.2	82.4	83.7	89.4	89.6	11.0	0.1	0647:01.3
LEVEL FLY-BY EAST TO WEST									
14	86.5	74.7	80.0	82.9	86.7	86.9	23.5	0.2	0640:17.3
16	88.1	77.4	82.6	85.6	89.6	89.9	16.5	0.3	0645:07.3
18	-	76.0	81.2	85.9	87.9	88.3	-	0.3	0649:32.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.3.b

BELL 206L HELICOPTER

DOT/TSC
7/26/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE 13,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	89.0	75.5	79.5	83.5	85.6	86.2	55.0	0.5	0601:10.8
8	89.5	75.2	80.5	84.7	87.3	87.9	53.5	0.6	0607:14.3
9	89.3	74.3	79.0	83.3	86.0	86.4	47.0	1.3	0613:30.3
10	89.1	73.0	78.4	83.2	85.6	86.2	53.5	0.5	0623:15.3
11	89.6	73.9	79.2	83.9	85.9	86.3	51.5	0.4	0629:23.8
12	88.0	73.4	78.8	83.6	86.1	87.0	39.0	1.0	0634:50.8
TAKEOFF									
1	86.1	72.3	76.7	79.4	83.1	84.4	42.5	1.3	0534:01.8
2	86.5	71.6	77.0	79.6	83.8	84.1	37.5	0.3	0540:18.3
3	86.0	72.3	76.9	79.1	83.3	83.8	37.0	0.5	0543:39.3
4	-	74.9	78.6	79.7	84.8	85.1	-	0.3	0546:21.8
5	86.9	74.4	77.8	78.7	84.5	84.8	61.0	0.3	0550:32.8
6	-	74.4	78.0	79.3	83.7	84.3	-	0.6	0554:22.8
LEVEL FLY-BY WEST TO EAST									
13	83.3	71.7	77.3	83.9	84.2	84.4	19.0	0.2	0637:47.8
15	84.8	74.3	79.2	86.2	86.2	86.6	15.5	0.4	0642:47.8
17	84.0	73.6	78.9	86.1	85.4	85.6	17.5	0.2	0647:01.8
LEVEL FLY-BY EAST TO WEST									
14	85.6	73.5	78.8	84.9	85.5	85.7	22.5	0.3	0640:18.8
16	87.5	75.3	80.3	86.2	86.9	87.7	23.0	0.8	0645:07.3
18	86.7	75.2	80.0	85.7	86.4	87.1	19.0	0.8	0649:26.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table D.3.c

BELL 206L HELICOPTER

DOT/TSC
8/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE13,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	88.1	73.1	77.5	85.5	84.2	85.6	66.5	1.6	0601:27.3
8	88.3	74.1	79.1	85.9	85.4	85.8	56.5	0.4	0607:12.8
9	88.4	77.0	82.0	85.7	88.5	88.8	27.5	0.3	0613:34.8
10	87.9	76.5	81.3	85.3	87.5	88.0	39.0	0.5	0623:21.8
11	87.4	75.5	80.9	86.8	87.3	87.6	36.0	0.3	0629:37.3
12	87.7	73.3	78.5	86.1	85.1	86.2	41.0	1.1	0634:46.8
TAKEOFF									
1	86.2	73.7	78.8	82.6	85.5	85.8	32.5	0.3	0534:12.3
2	86.7	72.9	76.9	81.3	84.2	84.5	36.0	0.3	0540:17.8
3	86.2	72.5	77.4	81.7	84.1	84.6	38.5	0.4	0543:41.8
4	87.8	74.7	79.5	83.5	86.2	86.5	35.5	0.3	0546:25.8
5	86.8	73.2	77.8	81.6	84.2	84.6	53.5	0.4	0550:36.3
6	87.1	74.1	78.5	81.2	84.2	84.6	58.5	0.4	0554:25.8
LEVEL FLY-BY WEST TO EAST									
13	85.0	75.4	80.6	83.2	87.1	87.5	15.5	0.3	0637:49.8
15	86.3	75.2	79.9	85.9	86.8	87.0	15.3	0.3	0642:51.3
17	84.7	73.8	78.9	84.8	85.4	85.7	15.5	0.3	0647:00.7
LEVEL FLY-BY EAST TO WEST									
14	84.6	73.1	78.4	84.5	85.3	85.6	25.5	0.3	0640:17.8
16	85.8	73.7	79.0	87.5	85.9	86.2	29.5	0.3	0645:07.8
18	86.8	73.9	80.1	87.7	86.8	87.6	19.5	1.0	0649:23.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.3.d

BELL 206L HELICOPTER

DOT/TSC
8/ /78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE13,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	92.4	77.1	82.2	86.6	89.1	89.4	59.5	0.3	0601:21.8
8	92.8	80.7	86.6	90.6	92.7	92.9	31.5	0.1	0607:13.3
9	92.1	78.7	83.8	87.9	90.6	90.8	40.5	0.3	0613:14.8
10	90.6	78.6	82.9	85.5	90.1	91.0	32.5	0.9	0623:01.3
11	92.4	78.6	83.2	87.7	90.1	91.0	35.5	1.0	0629:17.8
12	91.4	79.3	84.5	89.1	91.3	91.9	32.5	0.5	0634:45.3
TAKEOFF									
1	87.8	73.5	79.2	83.0	86.3	86.5	35.5	0.2	0534:05.3
2	88.6	75.5	80.8	84.6	88.1	88.4	28.0	0.3	0540:06.3
3	87.8	74.4	79.9	81.1	86.8	87.2	32.0	0.3	0543:31.3
4	89.4	76.2	82.0	86.5	89.0	89.2	23.5	0.2	0546:14.8
5	87.6	73.5	79.2	82.0	86.2	86.5	36.5	0.3	0550:28.8
6	87.9	74.2	79.7	82.0	86.7	87.0	36.0	0.3	0554:11.3
LEVEL FLY-BY WEST TO EAST									
13	85.3	73.9	79.6	83.0	87.0	87.3	15.5	0.3	0637:52.3
15	86.8	76.6	81.2	86.2	88.4	88.5	15.5	0.1	0642:53.8
17	86.4	76.6	82.0	84.9	89.2	89.4	11.0	0.2	0647:03.8
LEVEL FLY-BY EAST TO WEST									
14	85.8	75.8	80.9	84.4	88.0	88.2	15.0	0.2	0640:13.8
16	87.1	76.8	82.0	86.9	89.2	89.5	13.0	0.3	0645:04.3
18	87.5	76.4	81.8	86.2	88.9	89.1	19.0	0.2	0649:28.8

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.3.e

BELL 206L HELICOPTER

DOT/TSC
8/ 7/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE 13,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	92.2	77.9	84.3	88.5	90.9	91.2	33.5	0.4	0601:36.8
8	92.7	79.0	83.8	87.6	91.1	91.2	52.5	0.2	0607:25.8
9	92.5	80.1	85.1	90.0	91.8	92.2	26.5	0.5	0613:31.3
10	91.3	78.5	84.4	88.9	90.9	91.2	35.5	0.2	0623:26.3
11	93.4	82.5	86.9	88.7	94.1	94.4	27.5	0.2	0629:37.8
12	92.6	78.8	84.7	88.9	91.1	91.3	32.5	0.2	0635:06.8
TAKEOFF									
1	84.1	69.2	74.6	77.9	81.0	81.6	57.0	0.6	0534:14.8
2	83.7	67.8	73.7	76.4	80.0	80.5	60.5	0.4	0540:24.8
3	-	68.8	74.5	76.3	80.8	81.1	-	0.3	0543:47.3
4	86.0	72.0	78.4	79.6	83.5	83.8	49.5	0.4	0546:29.3
5	84.0	67.8	72.9	76.1	79.7	80.0	78.0	0.3	0550:44.8
6	-	66.9	72.3	75.7	78.4	78.8	-	0.5	0554:30.3
LEVEL FLY-BY WEST TO EAST									
13	85.3	74.6	79.9	83.9	86.9	87.0	13.5	0.1	0637:47.3
15	86.0	75.9	81.3	84.1	88.7	89.1	12.5	0.4	0642:48.3
17	86.5	76.6	81.9	83.9	88.8	89.1	12.5	0.3	0646:58.8
LEVEL FLY-BY EAST TO WEST									
14	86.2	74.0	79.5	83.7	86.5	86.7	22.5	0.2	0640:19.3
16	87.0	75.8	81.1	84.5	88.2	88.5	19.0	0.2	0645:09.8
18	86.9	75.9	81.2	84.3	88.6	88.7	17.5	0.2	0649:34.8

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.4.a

SIKORSKY S61 HELICOPTER

DOT/TSC
7/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/14/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	97.1	85.9	91.8	94.9	98.9	99.0	15.0	0.1	0547:47.3
8	94.7	84.1	89.4	91.9	96.3	96.5	14.0	0.2	0551:54.8
9	95.5	85.4	91.2	94.0	98.2	98.3	13.5	0.2	0600:23.3
10	94.2	84.2	89.6	91.8	96.7	96.9	15.5	0.1	0604:41.8
11	96.5	85.9	91.2	93.4	97.9	98.2	15.5	0.3	0608:55.8
12	96.9	85.2	90.7	93.5	97.5	97.6	17.5	0.1	0613:08.8
TAKEOFF									
1	95.4	86.7	92.1	89.8	98.7	99.0	9.0	0.3	0522:36.3
2	96.1	87.7	93.4	89.9	99.9	100.2	9.0	0.3	0525:47.3
3	94.4	85.2	90.2	89.7	96.8	97.1	11.0	0.2	0528:44.3
4	93.9	84.4	89.0	88.8	95.6	95.7	14.5	0.2	0531:38.3
5	94.2	84.2	89.1	88.6	95.6	95.9	14.0	0.3	0534:22.3
6	94.2	84.4	89.5	88.4	96.1	96.3	14.5	0.2	0537:46.8
LEVEL FLY-BY WEST TO EAST									
13	91.2	84.4	89.3	89.2	96.3	96.4	6.5	0.1	0616:13.8
19	90.2	82.9	88.2	87.9	95.2	95.4	7.5	0.2	0628:32.3
21	88.3	80.5	85.7	85.5	92.7	92.9	8.5	0.3	0632:35.3
23	88.4	78.4	83.9	83.6	90.7	91.0	13.0	0.3	0637:40.8
LEVEL FLY-BY EAST TO WEST									
14	92.9	85.0	89.7	88.6	96.4	96.5	9.0	0.2	0618:07.8
16	92.2	84.1	88.8	87.9	95.5	95.8	9.5	0.3	0622:05.3
18	92.1	83.4	88.1	88.2	94.9	95.1	10.0	0.2	0626:14.8
20	92.9	85.4	89.7	89.2	96.3	96.5	8.5	0.1	0630:10.3
22	91.1	80.7	85.5	85.1	92.1	92.3	14.5	0.2	0634:58.8
24	92.3	80.6	85.0	86.0	91.7	92.0	29.5	0.2	0640:43.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.4.b

SIKORSKY S61 HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	92.5	80.8	85.3	86.8	92.1	92.4	26.0	0.2	0547:48.3
8	92.6	80.1	84.4	85.5	91.3	91.5	29.0	0.2	0551:56.3
9	92.4	79.3	83.7	84.7	90.4	90.6	36.5	0.2	0600:23.8
10	91.6	80.7	84.9	84.4	91.5	91.8	25.5	0.3	0604:42.3
11	91.9	79.6	84.0	84.7	90.7	91.0	27.5	0.2	0608:58.8
12	92.1	79.9	84.4	85.2	91.2	91.4	35.0	0.3	0613:09.3
TAKEOFF									
1	94.4	83.7	88.9	87.5	95.7	95.9	16.0	0.2	0522:36.3
2	94.0	83.3	88.5	87.0	95.1	95.4	17.0	0.4	0525:46.3
3	94.9	84.3	89.1	87.4	95.6	96.0	16.5	0.4	0528:44.8
4	94.0	84.3	89.2	87.4	95.8	95.9	16.0	0.2	0531:38.3
5	93.8	82.0	86.9	85.6	93.5	93.9	21.0	0.5	0534:20.3
6	93.8	82.4	87.1	85.7	93.8	94.1	19.0	0.3	0537:46.8
LEVEL FLY-BY WEST TO EAST									
13	92.2	85.6	90.1	91.2	97.1	97.3	6.0	0.2	0616:13.8
19	91.7	85.0	89.5	89.5	96.4	96.6	7.0	0.2	0628:32.6
21	89.4	82.2	86.7	86.1	93.6	93.9	8.0	0.3	0632:35.3
23	88.4	79.8	84.2	83.8	90.9	91.1	13.5	0.3	0637:41.8
LEVEL FLY-BY EAST TO WEST									
14	93.1	84.7	89.2	87.9	96.1	96.2	11.5	0.2	0618:07.8
16	93.3	85.3	89.4	88.2	95.9	96.2	12.5	0.3	0622:04.8
18	92.4	83.4	87.9	87.0	94.6	94.8	12.5	0.2	0626:15.3
20	93.2	84.1	88.5	87.7	95.2	95.4	16.5	0.2	0630:09.8
22	90.9	81.7	85.7	85.2	92.1	92.3	18.0	0.2	0634:57.8
24	91.8	80.1	84.1	83.8	90.7	90.9	34.5	0.2	0640:43.3

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.4.c

SIKORSKY S61 HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	93.6	83.0	88.7	90.5	95.7	96.1	12.0	0.3	0547:45.8
8	91.4	80.0	84.5	85.5	91.1	91.2	21.0	0.1	0551:55.8
9	92.0	81.7	87.0	88.6	94.0	94.2	16.5	0.3	0600:23.3
10	91.3	80.6	85.1	85.6	91.8	92.0	21.0	0.2	0604:42.8
11	92.1	80.3	84.6	86.6	91.4	91.7	19.5	0.2	0608:54.3
12	92.7	80.6	85.2	86.6	92.3	92.5	19.0	0.2	0613:09.3
TAKEOFF									
1	92.4	82.0	86.1	85.8	92.7	93.1	17.5	0.4	0522:35.3
2	92.7	82.0	86.5	86.2	93.1	93.4	17.0	0.4	0525:46.3
3	92.8	82.8	87.0	86.8	93.4	93.6	17.0	0.3	0528:43.3
4	92.5	82.5	86.6	86.4	93.2	93.5	18.0	0.3	0531:38.3
5	93.0	82.6	86.8	86.2	93.4	93.6	18.5	0.1	0534:23.8
6	92.8	83.7	87.8	87.0	94.2	94.5	16.0	0.3	0537:45.3
LEVEL FLY-BY WEST TO EAST									
13	91.4	84.6	88.8	88.3	95.4	95.8	9.0	0.5	0616:13.8
19	89.2	82.7	86.8	86.1	93.2	93.5	7.5	0.4	0628:31.8
21	88.5	80.2	84.7	85.6	91.3	91.5	10.5	0.2	0632:35.8
23	86.8	76.5	80.8	83.4	87.4	87.6	14.5	0.3	0637:40.8
LEVEL FLY-BY EAST TO WEST									
14	91.3	84.1	88.3	88.3	94.5	94.7	11.5	0.2	0618:08.3
16	91.3	83.7	87.8	87.8	94.2	94.4	11.0	0.3	0622:05.8
18	90.1	82.8	87.0	87.1	93.3	93.4	13.5	0.2	0626:15.3
20	91.2	83.1	87.4	87.6	93.7	93.9	12.0	0.2	0630:12.3
22	88.5	79.7	84.0	83.3	90.7	90.9	14.5	0.2	0634:59.8
24	90.3	79.2	83.2	83.5	89.5	89.7	25.5	0.2	0640:44.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.4.d

SIKORSKY S61 HELICOPTER

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	95.9	84.9	90.1	91.5	97.2	97.5	16.5	0.3	0547:42.3
8	94.6	83.6	88.8	89.7	95.5	95.8	17.5	0.2	0551:49.3
9	94.2	81.7	87.1	90.2	94.2	94.3	21.0	0.2	0600:21.8
10	93.5	82.0	87.3	89.0	94.2	94.4	21.5	0.2	0604:36.8
11	94.7	83.2	88.9	91.4	96.0	96.2	18.5	0.1	0618:51.3
12	95.4	83.8	89.5	92.3	96.5	96.8	16.5	0.3	0613:02.3
TAKEOFF									
1	100.1	92.8	98.9	94.7	105.1	105.3	6.0	0.2	0522:32.3
2	100.0	91.9	97.7	93.9	104.1	104.3	7.0	0.2	0525:42.3
3	98.2	90.0	95.5	93.3	102.1	102.3	8.5	0.2	0528:39.8
4	98.3	90.2	95.5	92.9	102.0	102.3	9.0	0.3	0531:33.8
5	97.8	08.8	94.1	92.0	100.8	100.9	10.5	0.1	0534:17.8
6	97.8	89.6	94.0	92.6	100.5	100.6	11.0	0.2	0537:40.3
LEVEL FLY-BY WEST TO EAST									
13	91.1	83.6	88.5	88.8	95.5	95.7	8.0	0.2	0616:15.8
19	92.4	85.5	90.6	90.1	97.6	97.8	7.0	0.2	0628:34.3
21	89.5	81.6	86.5	86.6	93.3	93.6	8.5	0.3	0632:37.3
23	90.0	80.3	85.1	85.7	92.0	92.2	12.0	0.3	0637:44.8
LEVEL FLY-BY EAST TO WEST									
14	----------		NO DATA AVAILABLE				----------		
16	94.7	86.2	91.0	90.2	97.8	97.9	10.0	0.1	0622:02.8
18	93.9	85.5	90.2	89.3	96.9	97.0	10.0	0.1	0626:12.8
20	94.7	86.8	91.3	90.4	98.1	98.4	8.5	0.3	0630:07.3
22	92.6	83.2	88.1	86.9	94.8	95.0	11.5	0.2	0634:55.8
24	93.7	81.2	85.7	86.5	92.3	92.5	30.0	0.2	0640:38.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.4.e

SIKORSKY S61 HELICOPTER

SUMMARY NOISE LEVEL DATA

AS MEASURED *

DOT/TSC
8/ 7/78

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	98.4	88.5	93.9	96.3	100.7	100.8	13.0	0.2	0547:50.8
8	96.6	84.4	90.3	94.2	97.9	98.1	15.5	0.1	0552:00.7
9	94.8	82.5	87.5	89.3	94.0	94.2	20.5	0.2	0600:25.8
10	95.3	83.5	88.5	90.8	95.7	95.8	18.5	0.1	0604:46.3
11	97.3	87.5	92.5	94.2	99.1	99.4	14.5	0.2	0608:59.8
12	97.3	85.1	91.1	93.8	97.9	98.1	18.0	0.2	0613:12.8
TAKEOFF									
1	93.2	84.2	88.9	88.2	95.3	95.5	12.0	0.2	0522:39.3
2	93.6	84.5	89.1	89.1	95.5	95.8	12.0	0.3	0525:50.8
3	92.9	84.0	87.7	88.4	94.2	94.4	15.5	0.2	0528:46.8
4	92.3	81.7	85.8	87.1	92.4	92.7	17.0	0.2	0531:41.3
5	92.4	82.2	86.0	87.0	92.7	92.9	16.5	0.2	0534:25.3
6	92.3	82.5	86.3	87.2	92.7	93.0	16.0	0.2	0537:48.3
LEVEL FLY-BY WEST TO EAST									
13	90.8	83.5	88.5	89.1	95.4	95.6	8.0	0.2	0616:11.3
19	90.0	83.9	88.4	88.1	95.0	95.2	6.0	0.2	0628:29.3
21	88.1	80.8	85.3	85.9	92.0	92.2	8.5	0.2	0632:32.3
23	87.8	78.5	83.5	83.6	90.3	90.6	13.5	0.3	0637:37.8
LEVEL FLY-BY EAST TO WEST									
14	92.4	83.7	88.0	87.6	94.6	94.8	9.5	0.2	0618:10.3
16	92.0	83.5	87.8	87.5	94.6	94.8	9.5	0.2	0622:07.8
18	91.4	82.3	86.7	87.0	93.5	93.6	10.5	0.1	0626:16.3
20	93.0	85.0	89.1	89.0	96.1	96.3	10.0	0.2	0630:12.3
22	90.4	80.4	84.9	85.1	91.6	91.8	14.5	0.2	0635:01.8
24	92.0	79.1	83.5	86.1	90.2	90.6	37.5	0.4	0640:49.3

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.5.a

SIKORSKY CH53 HELICOPTER

DOT/TSC
7/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/14/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	101.2	90.8	96.5	99.1	103.4	104.0	12.0	0.6	0806:02.8
26	101.9	89.7	96.1	100.2	102.5	103.1	17.0	0.7	0813:14.8
27	100.0	91.0	96.6	98.8	103.4	103.9	11.0	0.4	0817:51.8
28	101.3	93.0	97.8	99.3	104.7	105.0	13.0	0.3	0822:35.8
29	-	92.0	97.2	99.9	104.9	105.1	-	0.2	0826:36.8
30	-	89.7	94.9	98.5	102.2	102.3	-	0.1	0830:44.8
TAKEOFF									
32	95.6	85.8	90.1	94.1	97.5	98.2	12.0	0.7	0851:41.3
33	95.5	85.7	90.8	93.0	98.2	99.2	9.0	1.0	0901:49.3
34	95.4	85.6	90.3	93.3	97.5	98.2	12.0	0.9	0906:42.3
35	95.6	85.7	90.4	93.3	97.6	98.1	14.0	0.5	0911:41.8
36	-	85.1	89.9	93.3	97.3	98.1	-	0.9	0916:25.8
37	95.2	85.1	89.5	93.4	96.5	96.8	13.5	0.3	0921:29.8
LEVEL FLY-BY WEST TO EAST									
38	92.1	84.9	88.8	92.7	95.9	96.2	10.0	0.3	0924:19.8
40	96.3	87.7	92.7	98.8	99.6	99.8	9.0	0.2	0929:57.3
LEVEL FLY-BY EAST TO WEST									
39	96.5	88.0	92.3	96.5	99.3	99.5	12.5	0.2	0927:10.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Tab 5.b

SIKORSKY CH53 HELICOPTER

DOT/TSC
//27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	97.2	84.6	89.2	91.1	95.6	95.9	28.0	0.3	0805:56.8
26	96.7	85.7	89.5	91.9	96.1	96.4	21.0	0.3	0813:18.8
27	94.9	85.3	90.0	92.1	97.0	97.3	22.0	0.3	0817:51.8
28	97.0	85.3	89.9	92.7	96.7	96.9	26.5	0.2	0822:35.8
29	95.6	82.9	87.3	90.6	94.8	94.9	27.0	0.2	0826:39.3
30	97.3	86.5	90.9	92.3	97.4	97.7	23.0	0.3	0830:40.3
TAKEOFF									
32	94.5	84.1	88.5	92.8	95.8	96.0	14.0	0.2	0851:39.8
33	-	85.5	89.9	93.4	97.1	97.3	-	0.2	0901:49.8
34	94.9	85.4	89.9	93.3	97.3	97.6	13.0	0.3	0906:41.8
35	94.8	85.1	89.4	93.5	96.1	96.7	13.5	0.5	0911:41.3
36	94.4	83.8	88.3	92.8	95.1	95.8	15.0	0.7	0916:26.3
37	94.4	84.2	88.7	93.0	95.4	96.0	15.0	0.6	0921:28.8
LEVEL FLY-BY WEST TO EAST									
38	-	87.2	90.7	96.9	97.3	97.8	-	0.5	0924:18.8
40	95.4	86.3	90.5	100.6	97.0	97.6	13.5	0.6	0929:57.3
LEVEL FLY-BY EAST TO WEST									
39	95.1	87.2	91.9	95.0	98.7	99.3	11.0	0.6	0927:10.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.5.c

SIKORSKY CH53 HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	97.4	87.0	92.9	95.7	100.1	100.3	12.5	0.1	0806:04.8
26	98.0	86.8	92.9	95.6	99.7	99.9	18.0	0.2	0813:18.8
27	96.9	86.9	92.0	94.2	98.9	99.2	15.0	0.2	0817:50.8
28	98.0	87.7	92.5	94.8	99.4	99.8	17.0	0.4	0822:35.8
29	98.5	88.7	94.4	96.7	101.4	101.5	12.5	0.2	0826:37.3
30	97.3	85.5	91.0	93.3	97.8	98.1	21.5	0.4	0830:44.8
TAKEOFF									
32	95.1	85.5	89.8	92.5	97.0	97.5	12.5	0.5	0851:41.3
33	-	84.5	89.1	92.5	96.0	96.6	-	0.6	0901:50.8
34	94.7	84.6	89.0	92.5	96.0	96.4	15.0	0.4	0906:43.8
35	94.5	84.4	88.7	91.9	96.1	96.6	14.0	0.5	0911:42.3
36	94.5	84.3	88.8	92.3	95.6	96.0	15.5	0.4	0916:26.8
37	95.2	85.2	89.7	92.7	97.2	97.5	13.5	0.4	0921:30.8
LEVEL FLY-BY WEST TO EAST									
38	92.1	82.9	87.9	92.1	94.3	94.9	11.5	0.6	0924:17.3
40	94.1	85.0	90.0	95.2	97.3	97.6	11.5	0.2	0929:56.3
LEVEL FLY-BY EAST TO WEST									
39	98.3	90.0	94.0	101.5	100.5	100.8	13.0	0.3	0927:08.8

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.5.d

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	101.4	92.1	97.8	100.6	104.9	105.3	13.5	0.4	0805:59.8
26	101.5	89.4	95.0	98.4	102.2	102.6	18.0	0.4	0813:11.8
27	99.6	90.5	96.3	99.4	103.0	103.3	14.5	0.3	0817:50.3
28	101.8	90.6	96.3	99.7	103.0	103.2	16.5	0.3	0822:33.8
29	101.5	91.7	97.3	99.7	104.0	104.2	15.5	0.2	0826:34.3
30	101.4	90.6	95.7	98.8	102.7	103.0	18.5	0.3	0830:40.3
TAKEOFF									
32	98.8	90.0	95.1	96.8	102.7	103.4	8.0	0.6	0851:37.8
33	99.0	90.5	95.5	96.9	102.7	103.6	8.0	1.0	0901:46.3
34	99.2	89.6	95.0	97.0	102.4	103.4	9.0	1.0	0906:39.3
35	98.7	88.4	93.3	95.6	100.8	102.0	10.0	1.3	0911:36.8
36	97.6	88.0	93.2	95.4	100.5	101.2	9.5	0.8	0916:22.8
37	97.9	87.3	92.9	95.8	100.4	101.1	10.0	0.7	0921:25.3
LEVEL FLY-BY WEST TO EAST									
38	92.4	84.1	88.4	92.1	95.6	95.8	10.5	0.3	0924:21.3
40	96.4	87.3	92.1	98.8	99.2	99.4	11.5	0.2	0929:59.3
LEVEL FLY-BY EAST TO WEST									
39	97.3	89.3	93.7	96.0	100.5	100.7	13.5	0.2	0927:08.3

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.5.e

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/ 7/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE14,1970

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
25	104.0	92.5	98.0	101.8	104.5	105.0	15.0	0.7	0806:06.8
26	102.1	91.9	97.2	99.5	103.9	104.3	15.0	0.4	0813:19.8
27	101.3	89.3	95.0	98.3	101.6	101.7	13.5	0.2	0818:00.2
28	101.4	89.3	94.8	97.2	101.9	103.4	16.0	1.6	0822:39.3
29	101.8	91.7	97.0	99.5	103.7	104.1	15.0	0.4	0826:41.8
30	102.7	93.4	98.8	101.6	105.4	105.8	14.5	0.3	0830:48.8
TAKEOFF									
32	93.2	83.2	87.9	91.1	95.2	95.8	12.5	0.5	0851:43.8
33	93.6	84.2	89.0	91.0	96.2	96.7	12.0	0.4	0901:51.8
34	92.7	82.0	87.1	90.7	94.2	95.1	14.0	0.9	0906:45.3
35	92.6	82.4	87.1	89.6	94.1	94.7	14.0	0.6	0911:44.3
36	91.3	80.3	85.4	88.4	92.4	93.2	15.0	0.8	0916:27.8
37	92.3	82.1	86.5	89.5	93.3	93.8	15.5	0.5	0921:32.3
LEVEL FLY-BY WEST TO EAST									
38	91.9	83.7	88.0	91.2	95.1	95.4	10.5	0.3	0924:17.3
40	95.9	87.1	92.1	98.1	99.2	99.6	10.0	0.4	0929:54.8
LEVEL FLY-BY EAST TO WEST									
39	95.5	88.2	92.6	94.7	99.3	99.6	10.5	0.3	0927:12.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.6.a

BELL 212 HELICOPTER

DOT/TSC
7/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/15/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	97.5	85.9	92.3	96.4	98.5	98.9	19.5	0.4	0549:17.3
8	98.1	84.6	90.2	94.9	96.5	96.9	25.5	0.4	0554:13.3
9	97.2	83.2	90.1	95.1	96.3	96.8	25.5	0.4	0559:52.3
10	97.6	84.5	90.7	95.4	96.6	97.0	25.5	0.3	0607:39.3
11	97.2	85.7	92.3	96.7	97.9	98.2	20.5	0.3	0613:08.8
12	97.0	83.9	90.5	95.3	96.5	96.7	24.5	0.2	0617:48.3
TAKEOFF									
1	93.3	83.1	88.3	94.5	95.3	95.6	13.5	0.4	0516:41.8
2	92.3	81.3	87.1	93.5	94.2	94.6	13.5	0.4	0521:22.8
3	93.8	82.5	88.7	95.5	95.9	96.1	14.5	0.2	0526:22.3
4	94.4	84.6	89.5	96.6	96.9	97.5	12.5	0.9	0530:44.8
5	92.6	82.1	87.7	94.5	94.8	95.2	17.0	0.5	0535:11.8
6	92.1	80.7	84.9	94.4	93.9	94.5	13.5	1.0	0539:23.9
LEVEL FLY-BY WEST TO EAST									
13	93.8	79.4	86.0	93.2	93.4	93.5	22.5	0.2	0622:08.8
15	95.6	81.5	88.7	95.9	95.8	96.2	19.5	0.3	0627:03.3
17	94.0	79.8	86.6	93.0	93.7	94.1	23.0	0.4	0632:11.8
LEVEL FLY-BY EAST TO WEST									
14	95.8	81.7	88.4	94.8	96.3	96.5	21.0	0.2	0624:27.8
16	95.3	81.5	87.9	94.2	95.1	95.2	23.0	0.1	0629:23.8
18	95.6	82.9	88.4	94.7	95.6	95.9	20.5	0.3	0634:55.3

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.6.b

BELL 212 HELICOPTER

DOT/TSC
7/26/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	...5	78.5	84.3	96.2	91.1	92.4	30.0	1.4	0549:22.3
8	91.5	75.5	81.9	85.8	89.1	90.6	32.5	1.6	0554:19.8
9	91.4	77.0	82.6	87.0	89.8	90.7	31.0	1.0	0559:58.3
10	92.5	77.5	83.2	88.3	90.2	90.9	31.0	0.7	0607:45.3
11	92.8	79.1	84.7	88.6	91.5	92.1	29.0	0.7	0613:13.3
12	90.3	75.5	81.6	85.6	88.7	90.3	24.5	1.7	0617:55.8
TAKEOFF									
1	90.2	80.9	84.5	89.4	91.8	92.1	16.6	0.3	0516:41.8
2	89.8	80.1	84.0	88.2	91.1	91.6	16.0	0.5	0521:34.3
3	91.1	82.2	84.7	88.3	91.0	92.2	26.5	1.2	0526:06.8
4	91.1	79.0	83.3	90.6	90.5	91.0	25.5	0.5	0530:47.3
5	90.6	79.5	83.4	88.7	90.7	91.2	26.0	0.5	0535:13.3
6	-	79.0	82.9	87.7	89.9	90.4	-	0.5	0539:26.3
LEVEL FLY-BY WEST TO EAST									
13	93.1	81.4	86.1	93.7	92.5	92.9	22.5	0.3	0622:05.3
15	93.9	81.6	86.6	95.3	93.6	94.1	19.0	0.8	0627:00.7
17	92.9	79.7	84.6	93.1	91.2	92.6	25.0	1.4	0632:[illegible]3.3
LEVEL FLY-BY EAST TO WEST									
14	91.3	78.1	82.4	91.2	89.2	89.5	28.5	1.8	0624:21.3
16	92.3	79.3	83.8	91.8	91.2	91.6	26.0	0.6	0629:27.3
18	92.5	80.6	85.4	92.2	92.7	93.1	21.5	0.5	0634:57.9

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.6.c

BELL 212 HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	94.9	82.3	87.6	92.1	93.9	94.2	32.5	0.4	0549:12.8
8	94.6	79.9	85.7	91.5	91.8	92.0	38.0	0.2	0554:11.8
9	94.9	78.5	85.1	92.2	91.5	92.0	38.0	0.5	0559:48.8
10	94.0	78.3	84.0	91.5	90.3	91.3	36.0	1.4	0607:31.8
11	94.8	80.8	87.0	92.4	93.1	93.7	31.0	0.6	0613:10.3
12	94.1	79.2	84.7	91.6	91.5	91.7	39.0	0.2	0617:44.8
TAKEOFF									
1	92.2	81.6	85.3	92.6	92.1	92.4	21.0	0.4	0516:43.3
2	92.3	83.0	86.4	92.4	93.2	93.6	19.5	0.4	0521:35.3
3	92.3	80.9	84.7	92.2	91.3	91.6	30.5	0.3	0526:23.8
4	92.4	80.3	84.5	93.1	91.0	91.4	27.0	0.8	0530:43.3
5	92.7	83.5	86.8	92.5	93.7	94.1	20.0	0.4	0535:13.3
6	-	82.9	86.1	92.6	92.8	93.2	-	0.4	0539:26.8
LEVEL FLY-BY WEST TO EAST									
13	91.1	76.3	82.3	92.5	87.9	88.7	37.0	1.9	0622:00.7
15	92.0	77.7	84.8	94.3	90.5	91.3	26.0	2.4	0626:56.3
17	91.2	76.4	83.2	92.9	88.1	88.8	32.0	0.7	0632:05.3
LEVEL FLY-BY EAST TO WEST									
14	96.0	80.9	88.0	97.0	94.7	95.1	25.5	1.3	0624:22.3
16	94.3	78.0	86.1	95.4	92.4	93.7	27.0	1.8	0629:18.3
18	94.4	78.8	86.8	95.7	93.0	94.3	23.5	1.6	0634:30.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table 5.6.d

BELL 212 HELICOPTER

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	97.7	84.9	91.8	95.9	98.5	98.8	23.0	0.3	0549:11.8
8	98.3	84.7	90.6	94.8	97.3	97.6	27.0	0.3	0554:05.3
9	98.0	84.3	91.0	95.4	97.2	97.5	26.0	0.3	0559:46.3
10	97.5	84.1	90.5	95.0	96.7	96.9	25.5	0.2	0607:33.3
11	97.5	85.5	92.3	96.3	98.0	98.2	21.5	0.2	0613:02.8
12	96.7	83.7	90.3	94.9	96.4	96.8	26.0	0.5	0617:42.3
TAKEOFF									
1	97.3	89.0	94.1	98.7	101.4	101.6	8.5	0.3	0516:38.3
2	95.9	87.3	92.4	97.2	99.7	100.2	9.0	0.4	0521:19.3
3	97.2	87.0	93.1	98.6	100.9	101.1	10.5	0.9	0526:17.8
4	98.1	90.0	95.2	99.5	102.6	102.9	7.5	0.3	0530:42.3
5	96.3	86.4	91.9	96.7	99.3	99.6	12.0	0.3	0535:08.8
6	96.0	85.9	91.6	96.8	99.1	99.6	13.5	0.5	0539:21.3
LEVEL FLY-BY WEST TO EAST									
13	93.2	79.0	85.4	93.5	92.6	92.8	27.0	0.2	0622:11.8
15	95.2	81.6	88.5	96.5	95.6	95.8	18.5	0.2	0627:05.8
17	93.4	79.7	86.4	93.9	93.4	93.9	21.5	0.5	0632:14.8
LEVEL FLY-BY EAST TO WEST									
14	95.1	81.8	88.3	95.7	95.5	95.7	22.5	0.2	0624:25.3
16	94.7	82.7	88.0	95.1	95.3	95.5	22.5	0.3	0629:21.3
18	94.6	82.7	88.1	95.7	95.3	95.6	19.5	0.4	0634:53.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.6.e

BELL 212 HELICOPTER

DOT/TSC
8/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	98.4	86.6	93.5	97.5	99.1	99.4	18.5	0.3	0549:22.8
8	99.0	85.6	91.6	96.2	98.4	98.7	22.5	0.3	0554:19.3
9	98.5	85.1	91.7	96.3	98.0	98.3	21.5	0.3	0559:57.8
10	98.8	85.8	92.1	97.0	98.1	98.3	21.0	0.2	0607:47.8
11	97.4	86.3	92.9	96.5	99.0	99.3	18.5	0.3	0613:12.8
12	98.4	85.9	92.2	96.1	98.4	98.7	20.5	0.3	0617:54.3
TAKEOFF									
1	91.7	81.0	86.6	93.3	93.8	94.4	12.5	0.9	0516:44.3
2	90.6	80.3	85.6	91.5	92.5	93.0	14.0	0.5	0521:26.3
3	92.1	81.2	86.9	93.1	94.3	94.6	13.5	0.3	0526:26.3
4	92.8	82.0	87.0	93.0	94.3	94.7	15.5	0.4	0530:48.8
5	90.9	80.0	85.4	91.3	92.6	93.0	13.5	0.4	0535:15.3
6	90.6	79.0	84.9	91.2	91.6	92.2	15.5	0.9	0539:27.3
LEVEL FLY-BY WEST TO EAST									
13	92.6	79.9	86.1	93.6	93.5	93.8	20.0	0.3	0622:05.8
15	94.2	81.6	88.1	96.0	95.6	95.9	15.5	0.3	0627:00.2
17	92.5	80.0	86.4	93.5	93.6	93.9	17.5	0.3	0632:08.8
LEVEL FLY-BY EAST TO WEST									
14	94.4	82.7	88.9	95.6	96.3	96.6	19.5	0.3	0624:30.3
16	93.6	80.7	86.9	94.1	93.4	93.8	23.5	0.4	0629:27.3
18	94.2	83.2	88.2	95.2	95.2	95.4	20.0	0.2	0634:57.8

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.7.a

SIKORSKY CH53 HELICOPTER

DOT/TSC
7/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/15/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
28	99.4	91.0	96.6	99.7	103.1	103.3	10.0	0.2	0743:52.3
29	98.3	88.1	94.6	96.6	101.5	101.7	12.0	0.2	0748:21.8
30	100.9	89.4	94.9	97.6	101.7	102.3	14.5	0.6	0752:31.3
TAKEOFF									
19	98.0	90.5	95.4	97.5	102.7	103.3	6.5	0.5	0656:35.3
20	96.6	89.0	93.5	95.7	100.6	101.1	7.5	0.7	0701:30.3
21	96.9	89.7	93.7	96.2	100.5	101.7	7.0	1.2	0708:04.3
22	97.9	89.9	94.3	95.9	101.5	102.2	8.0	0.7	0712:35.3
23	96.6	87.7	92.5	95.0	99.8	100.5	9.0	0.8	0716:03.8
24	95.2	86.7	91.6	93.3	98.9	99.3	8.5	0.7	0730:14.3
LEVEL FLY-BY WEST TO EAST									
25	96.1	87.6	92.4	98.4	99.3	99.6	11.5	0.3	0735:47.8
27	96.6	88.3	93.1	99.6	100.0	100.4	11.0	0.4	0740:47.3
LEVEL FLY-BY EAST TO WEST									
26	98.2	90.3	94.4	100.6	101.3	101.4	10.5	0.2	0737:54.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.7.b

SIKORSKY CH53 HELICOPTER

DOT/TSC
7/26/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
28	-	83.0	88.5	91.5	96.0	96.3	-	0.3	0743:53.3
29	94.0	82.1	87.9	90.7	95.1	95.5	21.0	0.4	0748:23.3
30	96.4	85.1	89.6	91.9	96.3	96.5	18.0	0.3	0752:29.3
TAKEOFF									
19	95.9	86.2	90.9	94.3	98.4	98.7	10.5	0.3	0656:35.3
20	95.4	85.2	90.0	93.1	97.1	97.3	13.0	0.2	0701:30.8
21	96.0	85.9	90.6	93.4	97.6	97.9	12.5	0.3	0708:04.8
22	96.0	85.6	90.4	93.3	97.6	98.0	12.5	0.4	0712:34.8
23	95.7	85.6	90.3	93.0	97.2	97.6	13.5	0.4	0716:03.8
24	95.2	84.9	89.8	93.7	97.0	97.4	12.5	0.4	0730:13.3
LEVEL FLY-BY WEST TO EAST									
25	-	87.4	91.9	98.5	98.6	98.9	-	0.3	0735:48.3
27	96.9	87.8	92.6	100.5	99.4	99.8	12.0	0.3	0740:47.3
LEVEL FLY-BY EAST TO WEST									
26	95.0	86.0	90.9	94.5	97.9	98.1	11.5	0.2	0737:54.3

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.7.c

SIKORSKY CH53 HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
28	96.4	86.9	92.6	94.6	99.3	99.6	14.0	0.2	0743:50.8
29	96.2	86.9	92.8	95.2	99.8	100.1	12.0	0.3	0748:21.3
30	95.8	82.4	88.4	91.5	95.6	95.8	22.0	0.2	0752:34.3
TAKEOFF									
19	95.3	85.9	90.6	93.8	98.2	98.5	10.0	0.4	0656:35.3
20	94.7	85.4	90.1	93.1	97.3	97.6	12.0	0.4	0701:31.3
21	94.7	84.5	89.3	92.3	96.4	96.8	12.0	0.4	0708:05.3
22	94.7	84.7	89.4	92.2	96.3	96.9	13.0	0.6	0712:36.3
23	94.4	84.8	89.4	92.2	96.2	96.6	12.0	0.4	0716:05.3
24	93.0	83.1	87.7	92.1	94.6	95.1	12.5	0.5	0730:15.8
LEVEL FLY-BY WEST TO EAST									
25	93.6	84.1	88.6	94.9	95.6	96.1	14.5	0.6	0735:47.8
27	94.1	85.9	90.6	94.6	97.7	97.9	12.0	0.3	0740:47.3
LEVEL FLY-BY EAST TO WEST									
26	-	84.9	89.2	100.2	96.2	96.5	-	0.4	0737:55.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.7.d

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE : JUNE15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)		TIME AT PNLTM
APPROACH									
28	99.3	87.8	94.5	98.4	101.3	101.5	17.0	0.2	0743:49.8
29	97.5	87.1	93.4	96.8	100.2	100.4	12.5	0.2	0748:18.8
30	100.0	89.5	95.0	97.2	101.9	102.6	14.0	0.2	0752:27.3
TAKEOFF									
19	101.1	94.2	99.3	100.8	106.9	107.5	5.5	0.7	0656:32.3
20	98.7	91.5	96.3	97.8	103.5	104.0	6.5	0.5	0701:27.8
21	101.3	94.3	98.9	100.1	106.4	107.3	5.0	0.9	0708:00.7
22	101.1	93.9	98.7	99.5	106.1	106.9	6.0	0.8	0712:32.3
23	100.2	92.5	97.4	98.8	104.9	105.9	6.5	1.1	0716:00.7
24	98.3	89.9	95.0	96.5	102.6	103.5	6.5	0.9	0730:11.3
LEVEL FLY-BY WEST TO EAST									
25	95.8	86.7	91.6	97.9	98.7	98.8	12.0	0.2	0735:49.8
27	96.2	87.5	92.3	98.9	99.2	99.4	10.0	0.2	0740:48.8
LEVEL FLY-BY EAST TO WEST									
26	98.0	90.6	94.8	99.9	101.5	101.7	9.5	0.2	0737:51.8

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.7.e

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/ 7/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
28	101.0	91.3	96.9	99.1	103.8	104.4	10.5	1.1	0743:53.8
29	99.8	90.5	96.4	99.5	103.5	103.9	9.5	1.0	0748:23.3
30	101.6	91.2	96.6	98.7	103.7	104.7	12.0	1.1	0752:34.8
TAKEOFF									
19	96.8	88.6	93.5	94.3	100.8	101.6	8.0	0.7	0656:37.8
20	95.9	87.4	92.0	93.2	99.2	99.8	8.5	0.7	0701:32.8
21	96.3	88.1	92.8	94.0	100.3	101.1	7.5	0.7	0708:06.8
22	96.3	87.6	92.1	93.4	99.6	100.4	9.0	0.8	0712:37.8
23	95.1	85.5	90.2	92.2	97.5	98.2	10.0	0.7	0716:06.3
24	93.5	83.2	88.5	90.8	96.1	96.8	10.5	0.7	0730:16.8
LEVEL FLY-BY WEST TO EAST									
25	-	87.2	92.0	97.9	99.1	99.3	-	0.2	0735:45.3
27	-	87.6	92.5	98.3	99.6	100.1	-	1.1	0740:43.8
LEVEL FLY-BY EAST TO WEST									
26	96.7	89.0	93.2	98.7	99.9	100.2	10.0	0.2	0737:55.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.8.a

GAZELLE SA-3140 HELICOPTER(FRENCH)

DOT/TSC
7/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/15/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
37	89.7	78.8	83.7	85.6	90.4	92.1	14.0	1.8	0850:51.3
38	88.9	77.8	82.5	83.9	89.1	90.7	15.5	1.6	0854:49.8
39	91.4	80.0	84.7	86.5	91.6	92.9	13.5	1.3	0858:51.8
40	90.6	79.9	84.5	86.5	91.3	93.0	11.5	1.7	0902:56.3
41	89.9	79.9	84.0	85.1	90.4	91.9	12.5	1.7	0906:54.8
42	89.8	79.0	83.8	85.4	90.5	92.2	11.0	1.9	0911:00.2
TAKEOFF									
31	90.3	79.5	85.8	80.7	92.2	93.3	11.0	1.1	0817:47.3
32	93.9	83.8	91.3	83.5	96.6	98.3	8.0	1.8	0821:45.3
33	93.7	84.5	91.7	84.3	97.2	99.3	6.5	2.1	0825:32.3
34	93.8	84.4	91.7	84.4	97.2	99.0	7.0	1.8	0829:16.8
35	93.1	82.8	89.7	83.0	95.5	97.2	8.0	1.7	0833:14.3
36	94.5	85.0	92.3	84.8	97.6	99.5	6.5	1.9	0841:52.3
LEVEL FLY-BY WEST TO EAST									
43	86.9	77.0	82.5	83.1	89.1	91.2	8.0	2.1	0915:04.3
45	85.5	76.0	81.3	80.6	87.7	89.5	8.5	1.8	0922:59.3
47	84.6	75.8	80.2	79.7	86.9	88.5	8.5	1.5	0929:18.8
LEVEL FLY-BY EAST TO WEST									
44	-	76.0	80.4	77.3	86.7	88.5	-	1.8	0917:43.3
46	85.0	75.2	80.0	81.4	86.7	88.6	10.0	1.9	0926:04.3
48	85.1	76.2	80.5	82.6	87.1	88.9	10.5	1.8	0932:31.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.8.b

GAZELLE SA-314G HELICOPTER (FRENCH)

DOT/TSC
7/26/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
37	89.9	78.6	83.4	85.0	90.0	91.0	19.5	1.2	0850:51.3
38	89.7	78.2	83.1	84.3	89.6	91.2	16.5	2.1	0854:49.8
39	91.3	80.2	85.0	86.4	91.4	92.2	19.5	0.9	0858:48.3
40	90.1	80.2	84.8	86.3	91.4	92.3	16.5	1.0	0902:54.8
41	89.7	79.0	83.7	85.2	90.3	91.5	15.5	1.3	0906:54.8
42	88.7	77.1	82.1	83.7	88.9	90.2	17.0	1.4	0911:00.7
TAKEOFF									
31	92.7	80.6	88.1	83.4	93.6	95.6	13.0	2.3	0817:48.3
32	94.7	82.5	90.4	83.5	95.9	97.3	10.0	1.5	0821:45.3
33	95.9	84.5	92.5	85.7	98.0	99.4	9.0	1.5	0825:32.8
34	94.1	82.4	89.9	85.7	95.9	97.3	10.0	1.4	0829:16.3
35	92.6	81.1	88.8	84.5	94.7	96.3	9.0	1.5	0833:12.3
36	94.5	83.2	90.5	85.4	96.5	98.2	9.5	1.6	0841:52.3
LEVEL FLY-BY WEST TO EAST									
43	87.8	78.3	84.4	80.6	90.1	92.2	9.0	2.1	0915:02.8
45	86.2	77.1	82.8	80.3	88.7	90.6	9.0	1.9	0922:58.3
47	85.7	75.4	81.3	79.7	87.8	89.1	11.0	1.3	0929:18.3
LEVEL FLY-BY EAST TO WEST									
44	86.0	74.9	80.2	84.3	86.6	87.7	12.5	1.1	0917:41.3
46	86.3	75.7	80.6	84.7	87.1	88.6	12.5	1.5	0926:03.8
48	86.2	76.0	81.3	85.0	87.5	89.3	10.5	1.8	0932:31.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.8.c

GAZELLE SA-314G HELICOPTER (FRENCH)

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
37	86.5	74.0	78.8	81.1	85.5	88.2	17.0	2.7	0850:51.8
38	85.7	73.6	78.0	80.0	84.7	87.6	18.0	2.9	0854:48.3
39	87.0	73.9	78.4	80.4	85.1	88.0	20.0	3.0	0858:48.3
40	87.2	76.2	80.5	81.4	87.4	90.6	13.5	3.3	0902:53.8
41	85.8	74.0	79.0	80.3	85.7	87.7	15.5	2.0	0906:53.8
42	86.1	73.7	78.3	80.4	85.1	87.9	17.0	3.1	0910:58.8
TAKEOFF									
31	89.1	76.4	83.5	78.8	89.2	91.4	12.0	2.1	0817:47.3
32	90.9	78.7	86.7	79.4	92.1	93.6	12.5	1.5	0821:45.8
33	89.9	78.2	85.5	79.1	91.0	92.1	13.5	1.4	0825:33.3
34	90.3	79.4	87.2	80.3	92.6	93.7	11.0	1.2	0829:17.3
35	91.1	79.3	86.8	80.5	92.5	94.3	12.0	1.8	0833:13.3
36	90.1	78.4	86.1	79.5	91.6	92.7	12.0	1.2	0841:52.8
LEVEL FLY-BY WEST TO EAST									
43	86.7	77.2	82.4	86.1	88.3	90.0	10.5	1.7	0915:02.3
45	85.9	76.8	81.5	85.4	87.7	89.5	11.0	1.9	0922:58.3
47	85.8	76.3	82.3	85.7	88.1	89.7	8.5	1.6	0929:17.3
LEVEL FLY-BY EAST TO WEST									
44	84.6	75.2	80.4	80.0	86.3	87.6	11.0	1.3	0917:41.3
46	85.0	75.5	80.9	80.1	87.1	88.3	11.0	1.2	0926:03.3
48	84.2	75.0	79.8	79.9	86.3	87.5	12.0	1.3	0932:30.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.3.d

GAZELLE SA-3140 HELICOPTER (FRENCH)

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
37	89.3	78.1	82.9	85.0	89.4	91.3	17.0	1.9	0850:47.3
38	87.9	76.8	81.6	83.3	88.4	90.0	18.0	1.7	0854:46.3
39	90.2	79.2	84.0	86.3	90.5	92.2	14.0	1.7	0858:45.8
40	89.9	79.0	83.6	85.1	90.0	91.3	16.0	1.3	0902:50.8
41	88.2	77.5	82.0	83.6	88.5	90.2	15.0	1.7	0906:51.3
42	98.0	77.9	82.6	84.1	89.3	91.3	11.0	2.2	0910:56.8
TAKEOFF									
31	93.0	82.4	89.2	83.7	95.9	97.2	8.5	1.3	0817:44.3
32	94.7	84.8	91.6	85.2	97.6	99.7	7.0	2.1	0821:40.8
33	95.8	86.8	93.7	86.9	99.3	101.6	6.0	2.3	0825:28.3
34	94.8	85.6	92.5	86.2	98.4	100.3	6.0	1.9	0829:12.8
35	95.4	85.9	93.2	86.2	99.1	100.4	6.5	1.3	0833:09.8
36	96.3	87.2	94.2	87.5	99.7	101.8	5.5	2.2	0841:47.8
LEVEL FLY-BY WEST TO EAST									
43	86.4	76.0	81.7	81.1	88.3	90.4	8.0	2.1	0915:06.3
45	84.7	74.6	80.3	80.1	86.8	88.5	9.0	1.9	0923:01.8
47	83.9	74.6	79.7	78.4	86.6	88.0	9.0	1.4	0929:21.3
LEVEL FLY-BY EAST TO WEST									
44	84.4	75.1	79.9	81.6	86.1	88.1	9.0	2.1	0917:39.8
46	84.4	74.9	79.7	81.2	86.2	87.9	11.5	1.8	0926:01.3
48	85.2	75.5	80.2	82.5	86.8	88.8	11.5	2.1	0932:28.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.6.e

GAZELLE SA-3140 HELICOPTER (FRENCH)

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
37	89.2	76.9	83.3	85.1	89.9	91.6	11.5	1.7	0850:55.3
38	90.0	79.3	83.7	85.5	90.6	92.7	11.5	2.0	0854:54.8
39	94.0	85.4	89.7	90.9	96.3	97.0	10.0	0.7	0858:55.8
40	-	82.0	86.5	88.4	93.1	94.4	-	1.3	0902:59.3
41	89.6	79.8	84.3	86.8	91.0	92.8	10.5	1.9	0906:59.3
42	91.6	81.4	86.1	88.3	92.8	94.5	10.0	1.8	0911:04.8
TAKEOFF									
31	90.0	78.3	85.5	78.8	91.1	92.8	11.0	1.7	0817:51.8
32	93.3	81.5	89.3	81.2	94.4	96.2	10.5	1.8	0821:48.8
33	----------		NO DATA AVAILABLE				----------		
34	91.8	81.2	88.5	81.2	94.2	95.4	9.0	1.3	0829:19.8
35	89.6	79.2	85.4	80.1	91.5	92.7	9.0	2.1	0833:17.8
3	89.8	78.8	85.0	79.6	90.9	92.5	9.3	1.6	0841:56.3
LEVEL FLY-BY WEST TO EAST									
43	85.6	75.7	81.0	81.1	87.4	89.3	8.5	1.9	0915:01.3
45	84.3	74.6	79.9	79.5	86.1	87.9	9.0	1.8	0922:56.8
47	83.9	75.0	80.1	79.3	86.9	88.4	8.0	1.5	0929:16.3
LEVEL FLY-BY EAST TO WEST									
44	83.4	73.6	78.2	79.1	84.5	86.4	10.5	1.9	0917:44.3
46	84.0	74.5	79.4	80.2	86.1	87.9	9.5	1.7	0926:06.3
48	84.2	75.0	79.8	80.7	86.7	88.1	8.5	1.6	0932:33.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.9.a

BELL 206L HELICOPTER

DOT/TSC
7/18/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/16/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	87.4	77.7	82.9	86.8	89.4	89.6	15.5	0.2	0539:22.3
8	90.0	80.3	85.2	88.6	91.7	92.0	13.0	0.3	0543:48.8
9	86.8	75.4	81.1	86.6	88.1	88.4	15.5	0.2	0547:52.3
10	86.8	75.4	81.0	86.7	87.8	88.0	18.5	0.2	0555:43.8
11	87.3	75.8	91.4	87.0	88.1	88.3	16.5	0.2	0602:23.3
12	88.2	79.1	84.3	87.4	90.8	91.1	13.5	0.3	0607:44.3
TAKEOFF									
1	89.0	76.8	82.5	84.5	89.1	89.4	18.5	0.3	0513:33.3
2	87.3	75.3	81.2	82.7	87.9	88.1	21.0	0.3	0517:14.8
3	88.5	76.4	82.4	82.7	89.0	89.3	20.5	0.4	0521:39.8
4	87.7	76.1	81.6	82.4	88.2	88.6	20.5	0.4	0525:40.8
5	87.3	75.2	80.8	82.2	87.1	87.4	26.0	0.2	0529:53.3
6	87.7	76.0	81.9	82.7	88.6	88.9	18.5	0.2	0534:10.3
LEVEL FLY-BY WEST TO EAST									
13	86.1	75.0	80.1	82.7	87.3	87.4	17.0	0.1	0611:52.3
15	86.3	75.8	80.8	83.4	87.7	87.9	17.0	0.2	0625:01.3
17	86.7	76.1	80.9	83.9	87.8	88.1	17.0	0.3	0630:25.8
LEVEL FLY-BY EAST TO WEST									
14	88.1	77.7	82.4	86.6	89.5	89.9	15.5	0.5	0621:32.8
16	87.5	77.6	82.7	85.7	89.9	90.1	14.0	0.2	0627:23.8
18	86.8	76.5	81.4	84.4	88.1	88.5	17.0	0.3	0632:52.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.9.b

BELL 206L HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 130 M. SOUTH DATE: JUNE 16, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	84.2	71.1	77.0	81.3	83.5	83.8	28.0	0.4	0539:24.8
8	83.6	70.5	76.4	80.1	83.2	83.6	25.5	0.4	0543:47.8
9	-	68.7	73.9	79.5	80.0	80.8	-	0.9	0547:51.8
10	82.9	69.1	74.8	80.7	81.9	82.3	29.5	0.4	0555:44.8
11	82.1	68.6	74.0	80.3	80.8	81.1	29.0	0.5	0602:24.3
12	82.8	70.2	76.5	79.8	83.5	83.9	21.5	0.3	0607:44.8
TAKEOFF									
1	85.5	73.6	78.4	81.7	85.3	85.7	22.5	0.4	0513:33.3
2	85.6	74.1	79.3	82.4	86.0	86.4	20.0	0.4	0517:14.8
3	85.6	73.8	79.3	82.6	86.0	86.3	20.5	0.3	0521:39.3
4	85.6	73.7	79.0	82.3	85.8	86.2	23.0	0.4	0525:40.3
5	85.6	73.3	78.5	81.9	85.2	85.5	26.0	0.3	0529:52.8
6	85.3	73.2	78.5	82.0	85.2	85.6	24.5	0.3	0534:09.8
LEVEL FLY-BY WEST TO EAST									
13	84.4	74.1	78.8	85.8	85.5	85.8	18.5	0.4	0611:52.8
15	84.4	73.5	78.4	86.3	84.7	84.9	19.5	0.2	0625:00.7
17	84.2	73.4	78.3	85.5	84.4	84.7	19.5	0.3	0630:26.3
LEVEL FLY-BY EAST TO WEST									
14	85.4	73.3	78.3	85.3	84.8	85.1	21.5	0.3	0621:34.8
16	85.2	73.7	78.7	85.0	85.5	85.8	20.5	0.4	0627:23.3
18	85.4	74.3	79.3	85.2	86.1	86.3	20.0	0.2	0632:51.8

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.9.c

BELL 206L HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 16, 1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	88.7	76.7	82.2	87.4	88.2	88.4	23.5	0.2	0539:23.3
8	89.5	77.6	82.0	87.6	88.5	90.1	20.0	1.6	0543:46.8
9	87.2	76.3	81.6	87.5	88.2	88.4	18.0	0.2	0547:52.3
10	87.4	75.6	80.4	86.2	87.4	87.6	27.5	0.2	0555:42.6
11	87.2	75.4	80.4	86.9	87.4	87.8	20.0	0.4	0602:23.3
12	88.7	77.3	82.4	86.8	88.8	89.1	18.5	0.3	0607:44.8
TAKEOFF									
1	86.3	73.4	78.8	85.9	85.9	86.4	31.5	0.5	0513:35.3
2	84.9	72.6	78.0	85.5	84.8	85.2	24.0	0.4	0517:15.8
3	85.6	72.8	78.3	85.5	85.3	85.7	24.5	0.4	0521:41.8
4	85.2	72.7	78.0	85.4	84.7	85.1	24.5	0.4	0525:42.3
5	85.3	72.6	79.2	85.0	84.9	85.2	23.5	0.3	0529:54.8
6	85.3	73.0	78.4	85.7	85.3	85.8	23.5	0.5	0534:11.3
LEVEL FLY-BY WEST TO EAST									
13	84.4	72.2	76.9	84.3	83.4	83.7	26.5	0.3	0611:52.8
15	85.0	73.9	78.5	85.3	84.7	85.0	23.5	0.3	0625:01.3
17	86.0	74.7	79.4	85.7	85.5	85.9	23.5	0.4	0630:26.3
LEVEL FLY-BY EAST TO WEST									
14	86.7	74.3	80.9	90.3	87.1	87.4	19.0	0.3	0621:33.3
16	86.7	74.9	80.0	89.6	86.4	86.9	18.5	0.5	0627:21.3
18	85.7	73.5	78.5	88.2	84.8	85.4	22.0	1.4	0632:48.3

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B 9.d

BELL 206L HELICOPTER

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	89.0	78.7	83.6	87.1	90.2	90.5	15.0	0.2	0539:19.8
8	90.2	80.9	85.5	88.2	91.9	92.1	14.5	0.2	0543:42.8
9	86.4	75.3	80.9	85.9	87.5	87.7	16.0	0.2	0547:47.3
10	87.3	74.6	79.6	85.3	86.2	86.4	25.5	0.3	0555:38.3
11	86.5	74.8	80.4	86.1	87.2	87.5	16.5	0.3	0602:19.3
12	89.0	80.4	85.1	87.7	91.5	92.0	13.0	0.5	0607:39.3
TAKEOFF									
1	91.5	81.5	87.4	89.0	94.3	94.5	12.0	0.2	0513:28.3
2	89.9	78.7	84.7	85.6	91.4	91.8	15.5	0.4	0517:09.3
3	91.1	79.8	86.0	86.5	92.7	92.9	15.5	0.2	0521:34.3
4	90.6	78.7	84.8	86.3	91.8	92.1	16.0	0.3	0525:36.8
5	89.7	78.7	84.3	85.3	90.9	91.1	18.5	0.2	0529:48.3
6	90.5	79.4	85.1	86.2	91.7	91.9	15.0	0.2	0534:05.3
LEVEL FLY-BY WEST TO EAST									
13	85.6	74.9	80.3	84.3	86.8	87.0	17.0	0.2	0611:55.3
15	85.8	74.9	80.1	84.2	87.0	87.2	15.0	0.2	0625:03.8
17	85.9	75.6	80.6	83.7	87.4	87.6	16.0	0.2	0630:28.8
LEVEL FLY-BY EAST TO WEST									
14	87.6	78.6	83.0	86.4	90.2	90.6	13.0	0.4	0621:32.3
16	86.7	77.8	82.7	85.6	89.9	90.0	11.0	0.2	0627:20.8
18	85.7	75.8	80.7	84.6	87.5	87.9	15.5	0.5	0632:49.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

BELL 206L HELICOPTER

DOT/TSC
8/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
7	89.9	80.4	85.0	88.1	91.6	92.0	14.5	0.4	0539:25.8
8	91.1	81.7	86.0	89.8	93.5	93.7	12.5	0.2	0543:52.3
9	88.8	77.7	83.3	86.2	90.4	90.5	15.5	0.2	0547:58.3
10	89.5	81.6	86.5	88.2	93.1	93.4	10.0	0.3	0555:46.8
11	88.6	77.1	82.7	85.4	90.1	90.2	13.5	0.2	0602:28.3
12	87.2	75.0	80.2	83.4	87.5	87.7	20.5	0.2	0607:50.8
TAKEOFF									
1	86.9	74.1	79.7	81.3	86.4	86.6	24.0	0.2	0513:40.3
2	85.2	72.3	77.6	80.1	84.3	84.9	23.5	0.3	0517:21.8
3	86.4	72.9	78.7	80.4	85.5	85.9	25.0	0.4	0521:47.3
4	86.1	72.8	78.3	80.2	85.6	85.8	27.0	0.2	0525:47.8
5	85.5	71.8	77.5	79.4	84.7	85.2	26.0	0.5	0530:00.2
6	86.2	72.5	78.4	80.1	85.2	85.5	24.5	0.3	0534:17.3
LEVEL FLY-BY WEST TO EAST									
13	85.2	75.3	80.4	84.4	87.4	87.6	14.0	0.3	0611:49.3
15	84.6	75.3	80.2	82.5	87.0	87.3	13.0	0.3	0624:57.8
17	85.7	75.4	80.3	83.5	87.2	87.4	14.0	0.2	0630:22.8
LEVEL FLY-BY EAST TO WEST									
14	86.2	75.5	80.2	84.6	87.4	87.9	15.0	0.5	0621:34.3
16	86.0	76.4	81.5	84.4	88.6	89.8	12.0	0.3	0627:26.3
18	85.3	75.5	80.4	83.4	87.3	87.4	13.0	0.2	0632:54.8

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

HUGHES 500 HELICOPTER

DOT/TSC
7/17/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

MICROPHONE NO. 1 CENTER OF MICROPHONE ARRAY DATE: 6/16/78

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
26	86.6	79.4	83.4	84.6	89.7	90.0	12.5	0.2	0731:28.8
28	84.6	74.3	78.7	80.7	85.2	85.4	21.5	0.2	0741:57.8
29	89.2	80.9	84.5	85.8	90.8	91.0	13.5	0.2	0746:23.8
30	84.9	75.0	79.2	80.8	86.1	86.2	16.5	0.1	0750:31.3
31	87.9	80.0	83.7	85.1	90.2	90.3	12.0	0.1	0754:33.3
32	89.3	82.1	85.7	86.8	92.0	92.3	9.0	0.3	0757:39.8
33	88.6	81.7	85.1	86.0	91.3	91.6	11.5	0.2	0800:31.3
41	88.7	81.5	85.0	86.0	91.4	91.9	10.0	0.5	0815:36.3
42	89.1	80.9	84.6	85.8	91.2	91.5	11.5	0.2	0818:41.8
43	88.[illegible]	79.9	83.5	85.0	89.9	90.3	16.0	0.5	0823:42.3
TAKEOFF									
19	86.0	76.9	81.4	83.4	88.2	88.5	12.5	0.3	0658:50.8
20	87.1	78.8	83.3	85.0	90.4	90.8	10.0	0.4	0702:12.8
22	86.5	77.6	82.1	84.1	89.1	89.3	11.5	0.2	0709:01.3
23	85.8	77.2	81.6	83.5	88.5	88.8	12.0	0.3	0712:14.3
24	87.1	78.6	83.1	84.9	90.3	90.4	10.5	0.2	0715:40.3
25	86.5	77.9	82.4	84.2	89.5	89.7	11.0	0.2	0719:10.8
LEVEL FLY-BY WEST TO EAST									
34	85.5	77.7	82.4	84.5	89.3	89.7	9.5	0.3	0803:12.8
36	85.0	76.5	81.1	83.6	88.0	88.3	11.5	0.3	0806:29.3
38	84.6	76.2	81.0	83.2	87.9	88.3	10.0	0.4	0809:38.8
40	84.4	76.4	81.0	82.7	87.6	87.9	11.0	0.3	0812:54.8
LEVEL FLY-BY EAST TO WEST									
35	85.3	76.8	81.5	83.8	88.5	88.8	11.5	0.2	0804:49.8
37	84.6	76.2	81.0	83.4	88.0	88.4	10.5	0.4	0807:55.8
39	85.3	77.1	81.8	84.0	88.7	89.0	11.0	0.3	0811:08.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.10.b

HUGHES 500 HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE:JUNE 16,1978

EVENT	EPNL	DBA(M)	DRD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
26	82.4	72.1	76.3	80.0	82.5	83.7	24.5	1.2	0731:28.8
28	81.8	70.2	74.3	77.4	80.3	81.3	29.0	1.1	0741:56.3
29	84.3	73.5	78.0	80.1	84.5	84.7	21.0	0.3	0746:23.3
30	82.4	70.0	74.3	77.7	80.5	81.5	31.0	1.0	0750:30.8
31	83.9	72.7	77.1	79.4	83.6	83.9	25.0	0.3	0754:31.8
32	84.6	74.4	79.1	81.2	85.6	85.9	21.0	0.3	0757:37.3
33	84.1	73.0	77.3	79.9	82.3	85.1	24.0	3.1	0800:29.8
41	84.0	72.8	77.6	79.7	84.1	85.0	21.5	1.4	0815:33.8
42	84.3	72.8	77.3	79.2	83.9	84.9	23.5	1.0	0818:42.8
43	84.9	72.8	77.3	79.6	83.8	84.1	33.0	0.2	0823:42.3
TAKEOFF									
19	86.3	73.1	77.1	79.0	84.1	84.6	27.5	1.4	0658:44.8
20	85.9	73.5	77.5	79.6	84.1	84.9	23.5	0.8	0702:12.3
22	85.4	73.3	76.9	79.1	83.5	84.2	25.0	1.0	0708:58.3
23	85.6	73.0	77.2	78.9	83.7	84.2	26.0	1.2	0712:07.3
24	85.9	73.7	77.9	79.1	84.4	84.9	25.0	1.1	0715:37.8
25	84.8	72.7	76.7	79.2	83.3	84.1	22.0	0.8	0719:12.3
LEVEL FLY-BY WEST TO EAST									
34	85.6	75.8	80.3	85.4	86.5	86.7	15.0	0.2	0803:12.3
36	85.0	75.5	79.8	85.2	85.9	86.1	14.5	0.2	0806:28.3
38	84.9	75.9	80.1	85.0	86.9	87.2	14.0	0.4	0809:38.3
40	85.2	75.8	80.0	85.4	86.7	86.9	15.0	0.2	0812:54.3
LEVEL FLY-BY EAST TO WEST									
35	86.2	76.4	80.3	82.2	86.6	87.0	14.5	0.4	0804:47.8
37	86.0	77.0	80.7	82.2	86.8	87.1	15.0	0.3	0807:54.8
39	86.6	77.4	81.4	82.6	87.5	87.8	16.5	0.3	0811:08.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.10.c

HUGHES 500 HELICOPTER

DOT/TSC
7/27/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE:JUNE 16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)/TC		TIME AT PNLTM
APPROACH									
26	85.4	76.4	80.1	82.5	87.0	87.2	18.5	0.2	0731:28.8
28	84.0	74.4	78.2	81.0	84.8	85.1	22.5	0.3	0741:56.3
29	86.2	77.9	81.1	82.6	87.4	87.6	17.0	0.2	0746:21.3
30	84.1	72.9	76.8	81.4	83.1	83.4	27.0	0.2	0750:29.3
31	86.0	76.7	80.4	82.7	87.4	87.6	16.5	0.2	0754:32.8
32	86.2	77.5	81.2	83.8	87.7	88.0	17.0	0.3	0757:37.8
33	86.8	78.2	81.5	84.2	88.0	88.2	18.0	0.2	0800:29.3
41	86.2	77.7	81.2	83.3	87.9	88.1	15.0	0.2	0815:32.8
42	86.4	77.3	81.0	83.5	87.6	87.8	16.5	0.2	0818:41.8
43	86.5	76.7	80.2	82.7	87.0	87.3	19.5	0.3	0823:41.8
TAKEOFF									
19	84.1	72.2	76.5	83.6	82.9	83.3	23.5	0.4	0658:53.3
20	84.8	73.9	77.9	85.6	84.1	84.3	21.0	0.6	0702:10.3
22	84.2	73.2	77.2	84.5	83.6	83.8	21.5	0.2	0709:04.3
23	84.2	72.7	77.0	84.8	83.2	83.6	26.5	0.4	0712:15.3
24	84.4	72.6	77.0	85.0	83.3	83.8	23.0	0.9	0715:38.3
25	84.2	72.6	77.0	85.1	83.2	83.6	28.5	0.3	0719:10.3
LEVEL FLY-BY WEST TO EAST									
34	86.3	77.6	81.5	83.5	87.4	87.8	13.5	0.3	0803:12.3
36	86.7	76.5	80.9	82.6	87.4	87.8	14.5	0.4	0806:28.3
38	85.7	75.9	79.7	82.5	85.8	86.2	18.0	0.4	0809:38.3
40	85.8	76.7	80.4	82.3	86.4	86.8	13.5	0.4	0812:51.8
LEVEL FLY-BY EAST TO WEST									
35	84.6	75.4	79.8	86.2	86.2	86.6	13.0	0.4	0804:49.8
37	84.4	75.7	79.9	85.8	86.3	86.6	13.0	0.3	0807:55.3
39	85.6	76.7	81.1	87.6	86.9	87.2	12.0	0.3	0811:08.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.10.d

HUGHES 500 HELICOPTER

DOT/TSC
8/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 3 CENTERLINE 150 M. EAST DATE: JUNE16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
26	87.6	78.0	82.1	83.6	88.2	88.4	20.5	0.3	0731:22.8
28	85.5	74.6	78.9	80.5	85.3	85.4	20.5	0.2	0741:54.3
29	86.6	80.6	84.7	85.8	90.8	91.0	12.5	0.3	0746:19.3
30	84.5	74.3	78.5	80.3	85.0	85.2	22.5	0.2	0750:25.3
31	88.2	79.0	82.6	83.6	88.9	89.3	19.0	0.4	0754:30.8
32	89.0	80.7	85.0	86.1	91.6	92.0	12.0	0.3	0757:33.8
33	88.9	80.0	83.8	85.1	90.2	90.4	15.0	0.2	0800:25.3
41	87.7	79.3	83.3	84.8	89.6	89.9	13.0	0.3	0815:30.8
42	88.5	80.8	84.5	85.5	90.7	91.5	11.5	0.7	0818:40.3
43	90.1	80.3	84.3	85.2	91.0	91.4	16.0	0.4	0823:36.3
TAKEOFF									
19	88.8	81.1	85.6	87.3	92.6	92.9	8.5	0.3	0658:44.8
20	89.1	81.6	86.1	87.5	93.6	93.8	7.5	0.2	0702:07.3
22	88.6	80.8	85.5	87.5	92.7	92.9	8.0	0.2	0708:56.3
23	87.8	79.6	84.1	86.2	91.0	91.3	9.5	0.3	0712:09.8
24	89.2	81.8	86.6	88.3	94.0	94.3	7.5	0.3	0715:35.3
25	88.4	80.6	85.2	86.8	92.6	92.9	8.5	0.3	0719:05.8
LEVEL FLY-BY WEST TO EAST									
34	86.3	77.9	82.7	85.0	89.9	90.2	10.5	0.2	0803:15.8
36	85.5	77.1	81.5	84.1	88.4	88.7	10.0	0.3	0806:32.3
-	85.5	76.4	81.3	83.4	88.0	88.3	13.5	0.3	0809:41.8
40	85.2	76.3	80.8	83.4	87.8	88.1	11.5	0.3	0812:58.3
LEVEL FLY-BY EAST TO WEST									
35	85.3	77.3	81.8	84.3	89.0	89.2	9.5	0.3	0804:47.3
37	85.2	76.5	81.2	83.9	88.3	88.5	11.0	0.2	0807:53.3
39	85.9	77.7	82.3	84.8	89.3	89.5	10.0	0.2	0811:06.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

Table B.10.e

HUGHES 500 HELICOPTER

DOT/TSC
8/ 7/76

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 2 CENTERLINE 150 M. WEST DATE: JUNE16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	TIME AT PNLTM
APPROACH									
26	86.4	77.1	81.3	83.4	87.8	87.9	14.5	0.2	0731:32.8
28	85.2	75.5	79.8	81.3	86.8	87.0	17.0	0.2	0742:02.3
29	89.4	82.2	85.9	86.8	92.3	92.5	11.0	0.2	0746:28.8
30	87.7	80.7	84.5	85.4	91.4	91.6	9.5	0.2	0750:35.8
31	88.8	81.7	85.4	86.5	91.8	92.0	11.0	0.2	0754:38.8
32	89.4	80.4	84.5	86.0	91.5	91.8	10.5	0.3	0757:41.3
33	89.4	82.4	86.4	87.6	93.2	93.4	9.5	0.2	0800:34.3
41	89.0	80.7	84.3	85.4	90.9	91.0	12.0	0.2	0815:40.3
42	89.4	81.4	85.5	86.8	92.2	92.4	11.0	0.2	0818:46.8
43	89.4	82.1	86.2	87.7	92.6	92.9	9.5	0.3	0823:48.3
TAKEOFF									
19	84.6	75.0	79.5	81.4	86.6	86.9	14.5	0.3	0658:55.8
20	86.0	77.0	81.6	83.2	89.2	89.4	10.5	0.2	0702:16.8
22	85.4	75.8	80.7	82.9	88.1	88.3	12.0	0.2	0709:05.8
23	84.3	74.7	79.3	81.6	86.5	86.7	13.5	0.2	0712:19.8
24	85.5	76.3	80.8	82.2	88.3	88.5	11.5	0.2	0715:44.8
25	85.1	75.9	80.5	82.2	87.8	88.0	11.5	0.2	0719:15.3
LEVEL FLY-BY WEST TO EAST									
34	85.3	76.9	81.9	84.5	89.3	89.4	9.5	0.2	0803:09.8
36	84.9	76.0	80.9	83.4	88.2	88.4	12.0	0.2	0806:25.3
38	84.7	75.5	80.5	83.0	87.7	88.0	11.5	0.2	0809:35.8
40	84.1	75.2	80.0	82.6	87.4	87.7	10.5	0.3	0812:52.3
LEVEL FLY-BY EAST TO WEST									
35	84.9	76.5	81.5	83.7	88.8	89.1	9.5	0.3	0804:51.8
37	84.2	75.5	80.3	82.8	87.6	87.8	11.0	0.2	0807:58.3
39	84.8	76.3	81.2	83.7	88.6	88.8	9.0	0.2	0811:11.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

APPENDIX C

Appendix C contains "Corrected" data, the Appendix B data corrected for atmospheric absorption and position differences from reference conditions. Data are presented for CL-C, SL-S, and SL-N microphones.

Table C.1.a

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
8/ 4/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTER DATE:JUNE 12,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
1							NO TRACKING DATA			
3	96.4	98.0	0.45	-0.22	-0.00	0.45	125.3	131.1	119.0	124.5
4							NO TRACKING DATA			
5	97.9	99.8	1.32	-0.66	-0.00	1.33	138.4	344.1	119.0	295.9
6	97.9	100.0	0.56	-0.30	-0.04	0.60	127.4	139.0	119.0	129.8
TAKEOFF										
7	95.7	99.0	1.33	-0.72	0.02	1.32	119.8	124.1	101.5	106.8
8	94.8	97.4	1.56	-0.82	0.04	1.52	122.5	132.0	101.5	111.0
9							NO TRACKING DATA			
10	94.8	97.3	2.08	-1.04	0.14	1.95	128.9	129.8	101.5	104.1
11	94.9	97.9	1.69	-1.02	0.07	1.62	128.3	140.5	101.5	116.9
12	96.0	100.9	0.78	-0.41	-0.05	0.83	111.6	113.1	101.5	102.8
LEVEL FLY-BY WEST TO EAST										
13	90.3	95.9	1.33	-0.64	0.02	1.30	173.7	176.2	150.0	152.1
15							NO TRACKING DATA			
17	90.8	96.0	1.04	-0.52	-0.00	1.05	168.9	186.2	150.0	165.4
LEVEL FLY-BY EAST TO WEST										
14	92.6	96.5	1.40	-0.52	0.33	1.07	169.2	176.8	150.0	156.7
16	92.7	96.3	1.77	-0.65	0.44	1.33	174.3	187.5	150.0	161.2
18	90.3	92.8	0.93	-0.46	-0.01	0.94	166.7	171.9	150.0	154.6

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.1.b

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE12,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
1							NO TRACKING DATA			
3	93.9	94.2	0.67	-0.30	0.06	0.61	207.3	208.8	193.4	194.8
4							NO TRACKING DATA			
5	94.3	94.2	1.21	-0.60	-0.00	1.21	221.9	311.8	193.4	271.7
6	94.6	94.6	0.76	-0.38	-0.02	0.78	211.2	211.2	193.4	193.4
TAKEOFF										
7	94.6	96.3	0.67	-0.37	-0.08	0.75	199.3	209.1	183.1	192.1
8	94.4	95.6	0.53	-0.36	-0.20	0.73	199.0	199.0	183.1	183.1
9	95.0	96.9	-0.69	0.22	-0.25	-0.45	174.0	180.1	183.1	189.5
10	94.1	94.7	0.05	-0.10	-0.14	0.19	187.1	187.1	183.1	183.1
11	94.5	95.4	0.38	-0.21	-0.05	0.43	192.3	192.9	183.1	183.7
12	95.1	96.4	0.17	-0.14	-0.11	0.28	189.0	193.9	183.1	187.8
LEVEL FLY-BY WEST TO EAST										
13	91.8	94.7	0.43	-0.35	-0.08	0.71	229.8	231.0	212.1	213.2
15							NO TRACKING DATA			
17	92.5	96.0	0.76	-0.21	0.34	0.42	222.5	234.4	212.1	223.4
LEVEL FLY-BY EAST TO WEST										
14	92.2	95.4	1.69	-0.77	0.13	1.57	253.3	260.0	212.1	217.7
16	91.7	94.1	1.69	-0.78	0.11	1.58	253.6	256.3	212.1	214.4
18	91.6	94.4	-0.47	0.13	-0.20	-0.27	205.7	209.7	212.1	216.2

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.1.c

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
8/10/78

CORRECTED PNL

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE12,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	CPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
1							NO TRACKING DATA			
3	94.3	94.4	-0.53	0.14	-0.22	-0.32	187.5	190.5	193.4	197.5
4							NO TRACKING DATA			
5	94.6	94.3	-0.62	0.12	-0.37	-0.25	188.1	333.5	193.4	342.9
6	94.4	94.5	-0.61	0.19	-0.23	-0.38	185.3	185.6	193.4	193.0
TAKEOFF										
7	94.8	96.7	0.13	-0.12	-0.11	0.24	188.1	188.4	183.1	183.4
8	94.9	96.4	0.27	-0.21	-0.15	0.42	192.0	196.0	183.1	186.9
9	95.3	97.6	0.38	-0.28	-0.18	0.56	195.1	196.0	183.1	184.0
10	95.5	96.9	1.21	-0.62	-0.05	1.26	211.2	213.4	183.1	184.9
11	95.0	96.5	0.97	-0.51	-0.06	1.03	205.7	207.6	183.1	184.7
12	95.0	97.4	0.11	-0.12	-0.14	0.25	180.4	186.7	183.1	183.4
LEVEL FLY-BY WEST TO EAST										
13	90.0	92.5	0.79	-0.40	-0.03	0.32	232.6	242.3	212.1	221.0
15							NO TRACKING DATA			
17	90.5	93.6	0.81	-0.40	0.00	0.81	232.3	237.7	212.1	217.1
LEVEL FLY-BY EAST TO WEST										
14	91.3	94.5	-0.89	0.28	-0.31	-0.58	198.7	200.3	212.1	213.7
16	91.4	94.6	-0.40	0.11	-0.18	-0.22	207.0	207.3	212.1	212.4
18	92.0	94.0	1.31	-0.61	0.07	1.24	244.1	248.7	212.1	216.1

NOTE 1: ATMOSPHERIC ABSORPTION 8KHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.2.a

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
8/ 4/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 12,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA (METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
25	94.4	96.5	2.62	-1.20	0.16	2.46	157.0	160.3	119.0	121.5
26	94.2	96.0	1.73	-0.80	0.10	1.63	143.0	1[illegible].0	119.0	121.5
27	95.1	98.7	1.95	-0.92	0.09	1.86	146.9	155.4	119.0	125.9
28	94.5	98.0	2.83	-1.30	0.18	2.65	160.6	179.8	119.0	133.2
29							NO TRACKING DATA			
30	94.2	96.3	1.93	-0.89	0.12	1.81	146.0	156.1	119.0	127.2
TAKEOFF										
19	88.7	89.3	-5.00	2.22	-0.52	-4.48	87.2	87.8	145.5	145.5
20	87.7	88.3	-4.28	1.89	-0.42	-3.86	94.2	94.2	145.5	145.5
21	87.7	88.3	-3.84	1.71	-0.35	-3.49	98.1	98.1	145.5	145.5
22	87.6	88.0	-3.80	1.70	-0.34	-3.46	98.5	98.5	145.5	145.5
23	87.7	88.5	-3.54	1.55	-0.38	-3.16	101.8	101.8	145.5	145.5
24	87.4	87.8	-3.19	1.30	-0.29	-2.90	107.9	107.3	145.5	148.9
LEVEL FLY-BY WEST TO EAST										
31	90.5	92.3	0.29	-0.12	0.05	0.25	154.2	154.8	150.0	150.5
33	90.5	92.4	0.49	-0.19	0.09	0.40	156.7	157.3	150.0	150.2
34	90.4	92.8	0.99	-0.43	0.12	0.87	165.5	166.4	150.0	150.8
36	90.2	92.3	1.01	-0.46	0.08	0.94	166.7	167.9	150.0	151.1
38	90.5	92.4	1.20	-0.54	0.10	1.10	169.8	171.0	150.0	151.0
LEVEL FLY-BY EAST TO WEST										
32	90.7	92.1	0.43	-0.23	0.00	0.[illegible]	158.2	158.5	150.0	150.5
35	89.2	91.9	1.39	-0.64	0.08	1.3[illegible]	173.7	175.0	150.0	151.0
37	89.3	92.5	0.65	-0.27	0.10	0.3[illegible]	159.4	160.9	150.0	151.4

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.2.b

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE12,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)			DATA(METERS) (REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR	
APPROACH											
25	89.5	88.6	1.53	-0.72	0.07	1.46	228.0	247.2	193.4	209.7	
26	89.9	88.9	1.02	-0.50	-0.01	1.03	217.0	223.4	193.4	199.1	
27	89.9	88.7	1.43	-0.66	0.07	1.36	225.2	234.7	193.4	202.5	
28	89.5	89.8	1.92	-0.86	0.16	1.76	235.6	249.0	193.4	204.4	
29							NO TRACKING DATA				
30	89.0	88.9	1.37	-0.62	0.10	1.27	222.8	233.8	193.4	202.9	
TAKEOFF											
19	86.5	86.6	-1.83	0.70	-0.38	-1.45	179.2	186.5	210.7	219.5	
20	87.0	86.1	-1.70	0.66	-0.33	-1.37	181.1	189.9	210.7	221.3	
21	87.3	86.7	-1.36	0.53	-0.27	-1.09	186.3	194.8	210.7	220.6	
22	-	85.6	-1.55	0.60	-0.29	-1.25	183.5	187.8	210.7	215.6	
23	86.6	86.3	-1.45	0.57	-0.27	-1.18	184.7	192.0	210.7	219.0	
24	-	86.4	-1.37	0.49	-0.35	-1.02	188.1	195.1	210.7	218.5	
LEVEL FLY-BY WEST TO EAST											
31	86.2	86.6	-0.58	0.18	-0.21	-0.37	203.6	208.5	212.1	217.2	
33	86.5	89.3	-0.39	0.09	-0.20	-0.19	207.6	207.9	212.1	212.4	
34	86.9	89.5	-0.09	0.01	-0.07	-0.02	211.5	215.5	212.1	216.3	
36	87.2	89.5	0.45	-0.21	0.02	0.44	222.8	234.1	212.1	223.8	
38	87.4	89.7	0.59	-0.25	0.08	0.51	224.6	235.3	212.1	215.5	
LEVEL FLY-BY EAST TO WEST											
32	88.5	91.4	0.91	-0.41	0.06	0.84	233.2	233.2	212.1	212.1	
35	89.0	91.3	1.10	-0.49	0.10	1.01	237.4	238.4	212.1	212.9	
37	89.4	91.9	0.92	-0.38	0.15	0.77	231.3	231.3	212.1	212.1	

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.2.c

BOEING BO-105 HELICOPTER (GERMAN) DOT/TSC 8/10/78

CORRECTED EPNL

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE12,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
25	87.4	86.3	-2.22	0.90	-0.38	-1.85	171.3	172.2	210.7	211.8
26	87.5	87.0	-1.93	0.76	-0.36	-1.57	176.8	179.2	210.7	213.6
27	90.6	88.7	-1.90	0.79	-0.27	-1.63	175.6	175.9	210.7	211.0
28	89.6	87.8	-1.73	0.71	-0.28	-1.45	178.9	182.0	210.7	214.3
29	89.9	88.7	-1.63	0.64	-0.31	-1.32	181.7	182.0	210.7	211.0
30	89.9	89.8	-1.44	0.59	-0.24	-1.20	184.1	185.9	210.7	212.8
TAKEOFF										
19	89.5	92.5	0.41	-0.33	0.02	0.67	208.5	209.7	193.4	194.5
20	88.1	87.6	0.14	-0.15	-0.16	0.31	200.3	200.3	193.4	193.4
21	88.3	90.0	0.09	-0.08	-0.07	0.16	196.9	216.1	193.4	212.2
22	88.2	90.8	0.57	-0.28	-0.01	0.58	206.4	228.0	193.4	213.6
23							NO TRACKING DATA			
24	-	89.0	-0.12	-0.11	-0.35	0.23	198.4	206.7	193.4	201.4
LEVEL FLY-BY WEST TO EAST										
31	88.0	91.4	0.75	-0.34	0.05	0.69	229.2	238.7	212.1	220.8
33	87.9	91.4	0.76	-0.33	0.08	0.68	228.9	232.3	212.1	215.2
34	87.7	90.4	1.14	-0.49	0.14	1.01	237.4	237.7	212.1	212.4
36	87.7	91.0	0.78	-0.33	0.10	0.68	228.9	234.4	212.1	217.2
38	86.8	88.9	-1.01	-0.09	-1.80	0.79	231.6	288.3	212.1	264.0
LEVEL FLY-BY EAST TO WEST										
32	87.0	88.6	-0.49	0.15	-0.19	-0.30	205.1	215.8	212.1	223.1
35	87.7	89.0	0.84	-0.24	0.34	0.50	224.3	225.6	212.1	213.2
37	87.8	89.3	-0.23	0.07	-0.09	-0.14	208.8	227.4	212.1	231.0

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

BELL 206L HELICOPTER

DOT/TSC
8/ 4/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTER DATE:JUNE 13,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	Δ ATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	91.8	91.2	0.06	-0.06	-0.07	0.13	120.7	167.6	119.0	165.3
8	92.5	91.1	-0.10	-0.02	-0.14	0.04	119.5	176.5	119.0	175.7
9	92.7	92.0	-0.10	-0.00	-0.11	0.01	119.2	182.9	119.0	182.6
10	-	90.5	1.24	-0.61	-0.00	1.25	136.9	150.0	119.0	130.4
11	92.5	90.5	-0.21	0.05	-0.11	-0.10	117.7	177.7	119.0	179.7
12	91.8	91.1	0.20	-0.13	-0.06	0.26	122.5	203.9	119.0	198.0
TAKEOFF										
1	85.4	84.9	0.83	-0.84	0.02	0.80	181.4	193.2	149.5	177.2
2	-	86.1	2.91	-1.03	0.25	2.67	169.6	208.2	149.5	154.4
3	-	84.6	2.54	-0.98	0.16	2.38	187.1	195.1	149.5	150.8
4	83.9	82.2	-3.49	0.18	-1.23	-2.26	143.6	279.2	149.5	360.0
5	87.2	84.6	2.16	-0.83	0.16	2.01	181.1	191.4	149.5	154.1
6	-	83.1	0.99	-0.91	0.00	0.99	184.4	185.3	149.5	166.1
LEVEL FLY-BY WEST TO EAST										
13	84.4	87.0	-0.97	0.38	0.19	-0.77	137.5	139.3	150.0	151.9
15	85.5	86.9	-1.25	0.48	0.27	-0.98	134.4	141.7	150.0	158.1
17	85.2	88.2	-1.37	0.55	0.26	-1.11	132.3	133.2	150.0	151.0
LEVEL FLY-BY EAST TO WEST										
14	86.0	86.0	-0.87	0.33	-0.19	-0.68	139.0	139.3	150.0	150.3
16	87.1	88.3	-1.64	0.66	-0.30	-1.34	128.9	129.2	150.0	150.3
18	-	86.7	-1.61	0.65	-0.29	-1.33	129.2	132.0	150.0	153.1

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS.

Table C.3.b

BELL 206L HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE13,1978

EV	CORRECTED EPNL	CORRECTED PNLTM	CORRECTIONS (dB) Δ 1	Δ 2	ΔATM	ΔDIS	TRACKING DATA(METERS) (ACTUAL) CPA	SR	(REFERENCE) CPA	SR
APPROACH										
7	87.0	86.4	0.17	-0.17	-0.18	0.35	201.2	343.2	193.4	329.9
8	89.3	87.7	-0.24	0.02	-0.19	-0.05	192.3	222.5	193.4	223.7
9	87.1	82.8	-3.63	1.38	-0.56	-2.96	185.0	189.0	254.3	259.8
10	87.3	83.1	-2.97	1.19	-0.48	-2.49	193.5	198.4	254.3	260.7
11	89.0	85.4	-0.89	0.30	-0.27	-0.62	180.4	269.1	193.4	288.4
12	87.8	86.7	-0.28	0.06	-0.16	-0.12	190.8	217.6	193.4	220.5
TAKEOFF										
1	87.2	86.3	1.86	-0.80	0.21	1.65	216.6	294.1	213.5	244.7
2	87.7	86.3	2.18	-0.99	0.13	2.05	207.9	273.1	213.5	217.6
3	86.8	85.2	1.38	-0.64	0.01	1.37	247.5	255.4	213.5	220.3
4	-	85.5	0.38	-0.25	-0.14	0.52	226.2	226.2	213.5	213.5
5	87.3	85.6	0.85	-0.42	-0.00	0.86	235.0	235.3	213.5	213.8
6	-	85.4	1.05	-0.51	-0.03	1.09	240.2	258.5	213.5	229.7
LEVEL FLY-BY WEST TO EAST										
13	82.9	83.2	-1.18	0.39	-0.34	-0.82	193.9	240.8	212.1	265.4
15	84.7	86.7	0.05	-0.09	-0.15	0.20	214.7	329.6	212.1	322.7
17	83.1	84.1	-1.49	0.51	-0.44	-1.03	188.7	189.0	212.1	212.4
LEVEL FLY-BY EAST TO WEST										
14	85.1	84.9	-0.81	0.28	-0.21	-0.60	198.7	208.2	212.1	222.2
16	86.8	86.8	-1.03	0.33	-0.32	-0.68	196.6	196.6	212.1	212.1
18	85.3	85.7	-1.36	0.47	-0.30	-1.06	190.2	363.6	212.1	405.5

NOTE 1: ATMOSPHERIC ABSORPTION 8KHz 1/3 OCTAVE BAND LESS THAN .2 DB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS.

Table C.3.c

BELL 206L HELICOPTER

CORRECTED EPNL

DOT/TSC
8/11/78

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE13,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	87.7	85.1	-0.51	0.14	-0.21	-0.30	187.1	187.1	193.4	193.4
8	88.6	85.6	-0.22	-0.01	-0.25	0.02	193.9	239.6	193.4	239.0
9	88.5	89.0	0.23	-0.15	-0.08	0.31	200.3	220.1	193.4	212.5
10	88.2	88.9	0.90	-0.46	-0.04	0.94	214.9	224.6	193.4	202.1
11	87.5	89.0	0.40	-0.22	-0.06	0.46	203.6	209.4	193.4	198.9
12	87.7	86.4	0.17	-0.14	-0.12	0.29	199.6	270.4	193.4	261.9
TAKEOFF										
1	84.0	85.6	-0.18	-0.01	-0.20	0.02	214.0	214.3	213.5	213.8
2	86.6	84.5	-0.03	-0.05	-0.13	0.10	215.8	218.5	213.5	216.2
3	86.6	85.4	0.82	-0.42	-0.04	0.87	235.0	252.7	213.5	229.5
4	86.8	85.0	-1.46	0.52	-0.36	-1.11	189.3	192.9	213.5	217.6
5	87.3	85.6	0.97	-0.48	-0.04	1.01	238.4	246.3	213.5	220.6
6	87.6	85.5	0.95	-0.47	-0.03	0.97	238.0	269.4	213.5	241.6
LEVEL FLY-BY WEST TO EAST										
13	84.8	87.4	-0.10	-0.08	-0.26	0.16	215.8	216.1	212.1	212.4
15	85.5	85.7	-1.31	0.51	-0.26	-1.05	188.7	188.7	212.1	212.1
17	84.6	85.5	-0.10	-0.04	-0.18	0.08	214.0	219.2	212.1	217.2
LEVEL FLY-BY EAST TO WEST										
14	84.5	85.5	-0.06	-0.03	-0.12	0.05	213.4	214.0	212.1	212.7
16	85.5	85.6	-0.37	0.20	-0.15	-0.43	202.4	202.7	212.1	212.4
18	86.5	87.4	-0.37	0.07	-0.23	-0.14	208.8	496.5	212.1	504.3

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNUTS

Table C.4.-

SIKORSKY S61 HELICOPTER

CORRECTED EPNL

DOT/TSC
8/ 4/78

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 14,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA (METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	97.1	99.0	0.03	-0.00	0.01	0.01	119.2	121.6	119.0	121.4
8	95.1	97.2	0.74	-0.33	0.08	0.66	128.3	128.9	119.0	119.6
9	96.0	99.1	0.65	-0.34	0.12	0.73	129.2	138.7	119.0	127.7
10	94.6	97.6	0.75	-0.34	0.06	0.68	128.6	130.5	119.0	120.7
11	96.5	98.2	0.02	-0.03	-0.02	0.04	119.5	131.1	119.0	130.5
12	97.1	97.8	0.23	-0.07	0.09	0.15	121.0	121.6	119.0	119.6
TAKEOFF										
1	96.4	100.8	1.79	-0.76	0.25	1.54	108.8	109.1	91.4	91.6
2	97.0	101.8	1.58	-0.68	0.23	1.35	107.0	106.7	91.4	91.4
3	95.6	99.1	2.05	-0.83	0.25	1.80	110.6	112.5	91.4	91.7
4	95.7	98.7	2.96	-1.22	0.47	2.49	121.0	121.3	91.4	91.4
5	96.1	99.2	3.34	-1.41	0.46	2.89	126.5	126.8	91.4	91.4
6	96.3	99.8	3.50	-1.41	0.57	2.92	126.5	128.0	91.4	91.8
LEVEL F -BY WEST TO EAST										
13	91.3	96.5	0.14	-0.04	0.05	0.09	151.5	153.0	150.0	151.5
19							NO TRACKING DATA			
21	88.6	93.3	0.36	-0.14	0.08	0.29	154.8	157.4	150.0	154.4
23	89.2	92.4	1.37	-0.62	0.15	1.23	173.1	181.4	150.0	158.0
LEVEL FLY-BY EAST TO WEST										
14	92.4	95.6	-0.88	0.36	-0.15	-0.73	138.1	138.4	150.0	150.3
16	91.9	95.3	-0.54	0.22	-0.10	-0.44	142.6	142.6	150.0	150.0
18	92.0	95.0	-0.14	0.05	-0.04	-0.11	148.1	148.1	150.0	150.0
20	92.0	95.9	-0.62	0.26	-0.08	-0.54	141.1	142.7	150.0	150.6
22	91.6	93.0	0.72	-0.27	0.16	0.56	159.7	160.3	150.0	150.5
24	92.7	92.9	0.87	-0.39	0.07	0.80	164.0	169.2	150.0	154.7

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS

Table C.4.b

SIKORSKY S61 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE14,1978

EV	CORRECTED EPNL	CORRECTED PNLTM	CORRECTIONS (dB) Δ 1	Δ 2	ΔATM	ΔDIS	TRACKING DATA(METERS) (ACTUAL) CPA	SR	(REFERENCE) CPA	SR
APPROACH										
7							NO TRACKING DATA			
8	92.6	91.6	0.10	-0.02	0.06	0.04	194.2	196.9	193.4	196.1
9	92.6	90.9	0.25	-0.05	0.14	0.11	195.7	200.6	193.4	198.2
10	91.7	92.0	0.25	-0.11	0.03	0.22	198.1	198.1	193.4	193.4
11	92.0	90.9	-0.03	0.05	0.08	-0.10	191.1	193.5	193.4	195.8
12	92.1	91.3	-0.08	0.06	0.04	-0.12	190.8	190.8	193.4	193.4
TAKEOFF										
1	94.4	95.8	-0.11	0.10	0.09	-0.20	173.7	173.7	177.7	177.7
2	94.2	95.6	0.21	0.00	0.21	0.00	177.7	180.4	177.7	180.4
3	95.2	96.4	0.35	-0.07	0.22	0.13	180.4	183.5	177.7	180.7
4	94.6	96.8	0.88	-0.26	0.35	0.53	188.7	188.7	177.7	177.7
5	94.6	95.1	1.18	-0.36	0.45	0.73	192.9	200.9	177.7	185.0
6	94.6	95.3	1.20	-0.36	0.46	0.74	193.2	193.9	177.7	178.3
LEVEL FLY-BY WEST TO EAST										
13	91.0	95.4	-1.95	0.77	-0.37	-1.58	177.7	178.9	212.1	213.5
19							NO TRACKING DATA			
21	89.2	93.6	-0.31	0.11	-0.08	-0.23	206.7	209.7	212.1	215.2
23	88.4	91.1	0.04	-0.00	0.03	0.02	212.4	212.8	212.1	212.4
LEVEL FLY-BY EAST TO WEST										
14	92.6	95.4	-0.85	0.34	-0.15	-0.70	196.0	196.3	212.1	212.4
16	92.8	95.5	-0.70	0.22	-0.26	-0.44	201.8	204.2	212.1	214.6
18	92.2	94.6	-0.21	0.07	-0.05	-0.15	208.5	210.6	212.1	214.3
20	92.6	94.4	-0.95	0.36	-0.23	-0.73	195.4	196.3	212.1	213.1
22	90.7	92.0	-0.34	0.11	-0.11	-0.23	206.7	21[illegible].8	212.1	217.4
24	92.1	91.4	0.53	-0.22	0.08	0.45	223.1	23[illegible]	212.1	219.6

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS.

Table C.4.c

SIKORSKY S61 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO 5 SIDELINE 150 M. NORTH DATE: JUNE14,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	△ 1	△ 2	△ATM	△DIS	CPA	SR	CPA	SR
APPROACH										
7							NO TRACKING DATA			
8	91.8	91.8	0.61	-0.23	0.14	0.47	203.9	204.2	193.4	193.7
9	92.3	94.7	0.53	-0.22	0.09	0.44	203.3	208.8	193.4	198.6
10	91.5	92.4	0.42	-0.15	0.11	0.31	200.3	200.6	193.4	193.7
11	92.2	91.8	0.22	-0.06	0.10	0.12	196.0	217.9	193.4	215.0
12	92.9	92.8	0.30	-0.11	0.08	0.22	198.1	198.1	193.4	193.4
TAKEOFF										
1	93.2	94.3	1.31	-0.51	0.28	1.03	199.6	200.9	177.7	178.8
2	93.2	94.3	0.91	-0.39	0.13	0.78	194.2	196.0	177.7	179.4
3	93.3	94.6	1.00	-0.42	0.15	0.85	195.7	195.7	177.7	177.7
4	93.3	94.8	1.31	-0.52	0.26	1.06	200.3	200.6	177.7	178.0
5	93.9	95.0	1.51	-0.58	0.34	1.17	203.0	210.9	177.7	184.6
6	93.6	95.9	1.39	-0.57	0.25	1.15	202.4	203.3	177.7	178.5
LEVEL FLY-BY WEST TO EAST										
13	92.4	97.5	1.71	-0.66	0.38	1.34	246.6	247.8	212.1	213.1
19							NO TRACKING DATA			
21	89.0	92.2	0.74	-0.30	0.12	0.62	227.4	240.2	212.1	224.0
23	87.8	89.3	1.67	-0.67	0.23	1.44	247.2	251.2	212.1	215.5
LEVEL FLY-BY EAST TO WEST										
14	91.3	94.8	0.08	-0.05	-0.0	0.10	214.6	217.9	212.1	215.4
16	91.4	94.5	0.11	-0.06	-0.01	0.13	215.2	216.4	212.1	213.3
18	90.2	93.6	0.23	-0.08	0.07	0.17	216.1	217.9	212.1	213.9
20	91.4	94.3	0.37	-0.14	0.08	0.29	219.2	251.5	212.1	243.3
22	89.0	91.9	0.98	-0.42	0.12	0.86	233.8	235.0	212.1	213.2
24	90.6	90.3	0.57	-0.24	0.0	0.50	224.3	225.6	212.1	213.2

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS.

Table C.5.a

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/ 4/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 14, 1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA (METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
25	101.5	104.5	0.53	-0.28	-0.03	0.56	126.8	135.9	119.0	127.6
26	102.9	104.6	1.47	-0.51	0.44	1.03	133.8	157.0	119.0	139.6
27	100.9	105.6	1.68	-0.78	0.10	1.58	142.3	163.4	119.0	136.6
28	101.8	106.0	0.96	-0.41	0.13	0.83	130.8	150.3	119.0	136.7
29	-	105.6	0.47	-0.30	-0.03	0.50	127.4	145.4	119.0	135.8
30	-	102.9	0.64	-0.40	-0.02	0.66	130.5	138.4	119.0	126.2
TAKEOFF										
32	94.5	96.1	-1.96	0.93	-0.11	-1.85	108.8	110.0	134.9	135.4
33	95.0	98.4	-0.82	0.39	0.02	-0.84	123.4	123.4	134.9	135.7
34	94.8	96.5	-1.70	0.79	-0.06	-1.64	112.5	112.5	134.9	135.4
35	95.3	97.5	-0.58	0.34	0.05	-0.63	124.7	128.0	134.9	137.4
36	-	97.7	-0.38	0.24	0.09	-0.47	127.7	128.0	134.9	134.9
37	94.8	96.1	-0.75	0.32	-0.00	-0.75	125.3	132.9	134.9	144.5
LEVEL FLY-BY WEST TO EAST										
38	95.2	101.7	5.50	-2.43	0.57	4.93	262.1	267.6	150.0	153.1
40	96.2	99.5	-0.30	0.16	0.04	-0.33	144.5	144.8	150.0	150.3
LEVEL FLY-BY EAST TO WEST										
39	96.6	99.7	0.15	-0.03	0.10	0.05	150.9	158.8	150.0	157.8

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS.

Table C.5.b

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE14,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
25	97.5	96.4	0.45	-0.17	0.06	0.39	201.2	352.0	193.4	338.4
26	96.8	96.5	0.13	-0.05	0.03	0.09	195.4	207.0	193.4	204.8
27	95.1	97.7	0.41	-0.19	0.04	0.38	201.8	217.9	193.4	208.8
28	97.3	97.1	0.23	0.06	0.35	-0.13	190.8	205.4	193.4	208.2
29	95.5	94.8	-0.12	0.07	0.03	-0.15	190.2	192.6	193.4	195.8
30	97.2	97.5	-0.17	0.07	-0.02	-0.15	190.2	293.5	193.4	298.4
TAKEOFF										
32	94.3	95.7	-0.32	0.17	0.03	-0.35	195.7	199.3	203.5	207.4
33	-	96.8	-0.49	0.23	-0.02	-0.47	193.2	194.2	203.5	204.5
34	94.6	97.1	-0.48	0.23	-0.02	-0.46	193.2	194.5	203.5	204.8
35	94.8	96.5	-0.14	0.10	0.06	-0.20	199.0	199.6	203.5	204.2
36	94.3	95.7	-0.12	0.08	0.05	-0.16	199.9	200.6	203.5	204.2
37	94.5	96.1	0.13	-0.04	0.05	0.08	205.4	205.7	203.5	203.8
LEVEL FLY-BY WEST TO EAST										
38	-	97.5	-0.33	0.14	-0.05	-0.28	205.4	206.7	212.1	213.3
40	95.5	97.7	0.10	-0.04	0.02	0.08	214.0	214.3	212.1	212.4
LEVEL FLY-BY EAST TO WEST										
39	95.4	99.9	0.63	-0.32	-0.02	0.65	228.3	228.6	212.1	212.4

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS.

Table C.5.c

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/11/78

CORRECTED EPNL

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE14,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
25	97.5	100.4	0.13	-0.04	0.05	0.08	195.1	196.9	193.4	195.2
26	98.5	100.8	0.85	-0.36	0.12	0.73	210.0	220.4	193.4	202.9
27	97.8	100.5	1.37	-0.46	0.39	0.98	214.9	246.9	193.4	222.2
28	98.4	100.6	0.82	-0.36	0.09	0.73	210.0	222.5	193.4	204.9
29	98.9	102.2	0.68	-0.28	0.11	0.57	206.4	212.4	193.4	199.1
30	97.7	98.9	0.80	-0.36	0.07	0.73	210.0	215.8	193.4	198.7
TAKEOFF										
32	94.4	96.3	-1.25	0.58	-0.05	-1.20	178.0	178.6	203.5	204.2
33	-	96.7	0.06	0.10	0.28	-0.21	198.7	207.0	203.5	212.0
34	94.3	95.6	-0.82	0.41	0.03	-0.84	185.3	193.5	203.5	212.6
35	94.2	96.2	-0.44	0.20	-0.03	-0.41	194.5	199.0	203.5	208.3
36	94.4	95.8	-0.19	0.12	0.05	-0.24	198.1	201.5	203.5	207.0
37	94.8	96.8	-0.68	0.33	-0.01	-0.68	188.7	205.1	203.5	221.3
LEVEL FLY-BY WEST TO EAST										
38	98.1	103.4	8.49	-2.49	3.01	5.48	376.4	404.8	212.1	228.1
40	93.9	97.3	-0.30	0.13	-0.03	-0.27	205.7	224.0	212.1	230.9
LEVEL FLY-BY EAST TO WEST										
39	98.0	100.2	-0.56	0.27	0.02	-0.58	199.3	217.6	212.1	231.5

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

NOTE 2: WIND VELOCITIES IN EXCESS OF 10 KNOTS.

Table C.6.a

BELL 212 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	97.9	99.4	0.56	-0.24	0.06	0.50	125.9	143.6	119.0	135.7
8	98.0	96.8	-0.06	0.00	-0.05	-0.01	118.9	136.9	119.0	137.0
9	97.4	97.1	0.34	-0.20	-0.07	0.41	124.7	149.0	119.0	142.3
10	97.9	97.3	0.44	-0.15	0.12	0.32	123.1	146.6	119.0	141.7
11	97.2	98.3	0.07	-0.06	-0.06	0.13	120.7	130.5	119.0	128.6
12							NO TRACKING DATA			
TAKEOFF										
1	91.5	92.2	-3.43	1.60	-0.19	-3.24	96.6	101.8	139.7	146.4
2	89.8	91.0	-3.61	1.10	-0.60	-3.02	108.5	396.5	139.7	555.8
3	90.7	90.8	-5.32	2.19	-0.35	-4.97	84.4	93.6	139.7	163.1
4	91.8	92.7	-4.79	2.16	-0.30	-4.48	85.0	101.2	139.7	166.3
5	90.9	92.4	-2.85	1.25	-0.21	-2.64	104.9	111.6	139.7	149.8
6	90.6	91.8	-2.60	1.04	-0.10	-2.50	110.0	138.4	139.7	182.3
LEVEL FLY-BY WEST TO EAST										
13	94.4	94.7	1.16	-0.60	-0.01	1.16	172.2	181.4	150.0	157.9
15	94.9	95.0	-1.22	0.57	-0.13	-1.08	131.7	136.6	150.0	155.5
17	94.2	94.6	0.52	-0.32	-0.07	0.59	161.2	177.1	150.0	164.7
LEVEL FLY-BY EAST TO WEST										
14	95.2	95.1	-1.29	0.64	-0.07	-1.22	129.5	144.8	150.0	167.6
16	95.6	95.7	0.54	-0.29	-0.03	0.56	160.3	207.0	150.0	193.6
18	95.7	96.2	0.25	-0.17	-0.08	0.34	156.1	188.4	150.0	181.0

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.6.b

BELL 212 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	92.9	92.7	0.27	0.16	0.60	-0.34	186.2	202.4	193.4	210.1
8	91.6	90.7	0.13	0.00	0.14	-0.01	193.2	216.4	193.4	216.5
9	91.9	91.1	0.38	0.11	0.61	-0.24	188.4	205.1	193.4	210.6
10	92.0	90.0	-0.92	0.44	-0.00	-0.91	174.7	196.0	193.4	217.0
11	92.4	91.3	-0.77	0.39	0.03	-0.80	176.8	195.7	193.4	214.0
12							NO TRACKING DATA			
TAKEOFF										
1	89.7	90.8	-1.29	0.63	0.42	-1.71	171.0	173.4	206.7	209.7
2	89.4	90.8	-0.78	0.36	-0.03	-0.75	190.2	190.2	206.7	206.7
3	89.2	89.3	-2.88	0.93	-1.00	-1.88	167.0	529.1	206.7	654.9
4	89.6	88.4	-2.60	1.12	-0.25	-2.35	159.7	162.2	206.7	209.9
5	90.2	90.4	-0.77	0.33	-0.09	-0.68	191.7	192.9	206.7	208.1
6	-	89.5	-0.91	0.41	-0.06	-0.85	188.1	188.1	206.7	206.7
LEVEL FLY-BY WEST TO EAST										
13	91.8	91.1	-1.85	0.61	-0.51	-1.34	184.4	320.3	212.1	368.4
15	92.4	91.7	-2.36	0.91	-0.35	-2.01	171.9	256.3	212.1	316.2
17	92.2	91.6	-1.05	0.37	-0.23	-0.82	194.8	336.5	212.1	366.4
LEVEL FLY-BY EAST TO WEST										
14	90.6	88.5	-1.01	0.34	-0.30	-0.71	196.0	462.4	212.1	500.4
16	91.4	90.2	-1.45	0.57	-0.27	-1.18	185.9	195.7	212.1	223.2
18	91.1	90.7	-2.37	0.97	-0.37	-1.99	169.8	173.4	212.1	216.6

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.6.c

BELL 212 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	95.3	94.9	0.69	-0.32	0.03	0.66	208.2	290.2	193.4	269.5
8	94.5	91.9	-0.06	0.01	-0.04	-0.02	192.9	220.1	193.4	220.6
9	95.1	92.4	0.44	-0.24	-0.06	0.50	204.5	271.9	193.4	257.1
10	94.3	92.1	0.81	-0.45	-0.13	0.93	214.6	361.2	193.4	325.5
11	95.2	94.5	0.80	-0.35	0.08	0.72	209.7	210.3	193.4	193.9
12							NO TRACKING DATA			
TAKEOFF										
1	91.7	91.5	-0.86	0.38	-0.09	-0.77	189.6	190.2	206.7	207.4
2	91.5	92.3	-1.29	0.52	-0.23	-1.06	183.5	184.4	206.7	207.8
3	92.2	90.9	-0.68	0.58	0.51	-1.19	181.1	181.7	206.7	207.4
4	91.8	90.4	-1.02	0.42	-0.14	-0.88	187.8	214.3	206.7	235.9
5	91.8	92.5	-1.56	0.66	-0.21	-1.35	177.7	178.0	206.7	207.1
6	-	92.2	-1.02	0.42	-0.16	-0.86	187.8	188.4	206.7	207.4
LEVEL FLY-BY WEST TO EAST										
13	92.1	90.7	2.04	-1.02	-0.07	2.10	267.9	582.8	212.1	461.3
15	92.1	91.7	0.43	-0.30	-0.19	0.62	227.1	506.0	212.1	472.6
17	91.9	90.2	1.37	-0.65	0.01	1.36	246.3	509.6	212.1	438.9
LEVEL FLY-BY EAST TO WEST										
14	95.6	94.6	-0.49	0.18	-0.13	-0.36	203.6	421.8	212.1	439.4
16	95.1	95.3	1.60	-0.74	0.08	1.51	251.5	506.0	212.1	426.7
18	95.3	96.0	1.72	-0.84	0.02	1.70	257.6	463.3	212.1	381.5

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.7.a

SIKORSKY CH53 HELICOPTER

CORRECTED EPNL

DOT/TSC
8/ 4/78

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA (METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
28	99.8	104.0	0.68	-0.33	0.02	0.66	128.3	128.6	119.0	115
29	98.4	101.9	0.20	-0.12	-0.04	0.24	122.2	123.1	119.0	119.9
30	101.4	103.2	0.93	-0.40	0.11	0.82	130.5	143.6	119.0	130.9
TAKEOFF										
19	94.7	97.2	-6.15	2.83	-0.49	-5.66	70.4	74.1	134.9	140.7
20	95.2	98.3	-2.64	1.29	-0.24	-2.40	100.3	101.2	134.9	133.0
21	95.0	98.1	-3.38	1.59	-0.30	-3.27	93.6	93.6	134.9	135.8
22	96.2	99.2	-3.01	1.30	-0.25	-2.76	100.0	100.3	134.9	137.3
23							NO TRACKING DATA			
24	93.4	96.0	-3.25	1.45	-0.23	-3.03	96.6	96.6	134.9	135.7
LEVEL FLY-BY WEST TO EAST										
25	95.7	99.0	-0.65	0.27	-0.09	-0.56	140.8	141.1	150.0	150.3
27	95.7	98.7	-1.68	0.74	-0.18	-1.51	126.5	126.8	150.0	150.3
LEVEL FLY-BY EAST TO WEST										
26	98.2	101.5	0.09	-0.04	-0.00	0.09	151.5	151.8	150.0	150.3

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.7.b

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	△ 1	△ 2	△ATM	△DIS	CPA	SR	CPA	SR
APPROACH										
28	-	95.5	-0.76	0.35	-0.04	-0.73	178.3	185.3	193.4	201.0
29	93.8	95.3	-0.23	0.09	-0.04	-0.19	189.3	208.5	193.4	213.0
30	96.3	96.2	-0.32	0.21	0.11	-0.43	184.1	228.3	193.4	239.8
TAKEOFF										
19	95.1	97.3	-1.37	0.58	-0.19	-1.18	178.3	179.5	203.5	204.9
20	95.0	96.7	-0.51	0.24	-0.12	-0.49	192.6	192.6	203.5	203.5
21	95.3	96.8	-1.14	0.48	-0.16	-0.99	182.3	182.9	203.5	204.2
22	95.3	96.9	-1.08	0.42	-0.24	-0.84	185.0	187.8	203.5	206.6
23							NO TRACKING DATA			
24	94.4	96.1	-1.35	0.55	-0.22	-1.13	179.5	186.8	203.5	211.8
LEVEL FLY-BY WEST TO EAST										
25	-	98.9	0.01	-0.07	-0.13	0.14	215.5	217.3	212.1	213.9
27	96.2	98.8	-1.04	0.34	-0.34	-0.69	196.0	196.0	212.1	212.1
LEVEL FLY-BY EAST TO WEST										
26	94.1	96.6	-1.49	0.64	-0.18	-1.31	182.9	183.5	212.1	212.8

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.7.c

SIKORSKY CH53 HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	△ 1	△ 2	△ATM	△DIS	CPA	SR	CPA	SR
APPROACH										
28	97.4	101.1	1.49	-0.51	0.40	1.10	217.6	223.1	193.4	198.2
29	96.3	100.3	0.21	-0.17	-0.14	0.35	201.2	201.5	193.4	193.7
30	96.6	97.0	1.21	-0.46	0.21	1.00	215.2	221.6	193.4	199.1
TAKEOFF										
19	93.8	95.8	-2.65	1.15	-0.28	-2.37	156.4	158.2	203.5	205.9
20	93.7	95.8	-1.82	0.75	-0.27	-1.55	171.3	174.0	203.5	206.8
21	93.8	95.2	-1.59	0.66	-0.23	-1.36	175.0	180.4	203.5	209.9
22	93.9	95.6	-1.34	0.55	-0.20	-1.14	179.2	181.7	203.5	206.3
23							NO TRACKING DATA			
24	92.3	93.8	-1.18	0.50	-0.14	-1.04	181.4	192.3	203.5	215.9
LEVEL FLY-BY WEST TO EAST										
25	93.3	95.5	-0.64	0.28	-0.09	-0.56	199.0	199.3	212.1	212.4
27	93.7	97.3	-0.63	0.26	-0.11	-0.52	199.9	200.3	212.1	212.4
LEVEL FLY-BY EAST TO WEST										
26	-	97.8	1.26	-0.58	0.06	1.20	242.6	255.1	212.1	223.0

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.8.a

GAZELLE SA-3140 HELICOPTER (FRENCH)

DOT/TSC
8/ 4/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA (METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
37	90.4	93.1	1.01	-0.36	0.28	0.73	129.2	133.2	119.0	122.7
38	89.5	91.7	1.02	-0.40	0.20	0.82	130.5	131.7	119.0	120.1
39	91.9	93.7	0.76	-0.29	0.18	0.59	127.1	149.0	119.0	139.5
41	90.6	93.2	1.28	-0.51	0.23	1.04	133.8	135.9	119.0	120.9
42	90.2	92.7	0.52	-0.16	0.20	0.33	123.4	123.7	119.0	119.3
TAKEOFF										
31	88.7	90.2	-3.09	1.43	-0.27	-2.82	88.7	94.2	123.1	129.6
32	92.6	95.8	-2.51	1.25	-0.30	-2.21	92.4	126.5	123.1	162.8
33	91.4	95.1	-4.22	1.90	-0.57	-3.65	79.6	113.7	123.1	172.5
34	91.1	94.3	-4.69	2.03	-0.68	-4.01	77.1	109.4	123.1	173.0
35	91.5	93.9	-3.32	1.73	-0.45	-2.86	82.6	129.8	123.1	180.1
36	92.2	95.2	-4.26	1.98	-0.61	-3.65	78.0	112.5	123.1	170.7
LEVEL FLY-BY WEST TO EAST										
43	86.8	90.8	-0.40	0.29	0.20	-0.59	140.2	191.4	150.0	204.7
45	85.7	89.7	0.16	0.08	0.32	-0.16	147.2	178.0	150.0	181.3
47	84.9	88.9	0.39	-0.04	0.32	0.07	151.2	181.4	150.0	179.9
LEVEL FLY-BY EAST TO WEST										
44	-	89.3	0.77	-0.36	0.04	0.72	162.8	230.7	150.0	212.6
46	85.5	89.1	0.49	-0.04	0.42	0.07	151.2	184.4	150.0	182.9
48	85.2	88.9	0.04	0.10	0.24	-0.20	146.6	202.1	150.0	206.7

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.8.b

GAZELLE SA-3140 HELICOPTER (FRENCH)

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
37	90.6	92.1	1.07	-0.37	0.34	0.74	210.3	212.8	193.4	195.6
38	90.3	92.0	0.84	-0.27	0.30	0.55	205.7	207.0	193.4	194.5
39	91.8	93.1	0.86	-0.31	0.24	0.62	207.6	210.3	193.4	195.9
40	90.7	93.2	0.91	-0.31	0.28	0.63	207.6	207.6	193.4	193.4
41	90.4	92.5	1.04	-0.40	0.23	0.81	212.1	213.7	193.4	194.8
42	89.4	91.3	1.08	-0.37	0.33	0.75	210.6	212.4	193.4	195.0
TAKEOFF										
31	92.0	94.3	-1.34	0.66	-0.00	-1.34	168.3	181.1	195.9	210.8
32	93.7	95.6	-1.69	0.77	-0.15	-1.54	164.3	184.4	195.9	219.9
33	94.3	96.7	-2.74	1.14	-0.46	-2.29	150.9	177.7	195.9	230.8
34	92.6	94.8	-2.50	1.03	-0.42	-2.09	154.5	161.8	195.9	205.2
35	91.7	94.7	-1.61	0.72	-0.16	-1.45	166.1	167.3	195.9	197.4
36	92.9	95.6	-2.60	1.07	-0.43	-2.17	153.0	171.0	195.9	219.0
LEVEL FLY-BY WEST TO EAST										
43	87.7	91.8	-0.44	0.36	0.28	-0.72	195.4	197.5	212.1	214.4
45	86.8	91.0	0.41	0.20	0.83	-0.41	202.4	205.1	212.1	215.0
47	86.3	89.9	0.75	-0.14	0.44	0.31	219.2	229.8	212.1	222.4
LEVEL FLY-BY EAST TO WEST										
44	87.0	89.1	1.39	-0.40	0.58	0.81	232.6	236.2	212.1	215.4
46	87.0	89.5	0.94	-0.20	0.53	0.41	222.2	233.5	212.1	222.8
48	86.8	90.0	0.69	-0.14	0.41	0.28	210.8	242.0	212.1	234.5

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.8.c

GAZELLE SA-314G HELICOPTER (FRENCH)

DOT/TSC
8/11/78

CORRECTED EPNL

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE15,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	△ 1	△ 2	△ATM	△DIS	CPA	SR	CPA	SR
APPROACH										
37	86.5	88.1	-0.10	0.11	0.13	-0.23	188.4	194.8	193.4	199.9
38	85.8	87.7	0.23	-0.04	0.15	0.08	195.1	199.3	193.4	197.6
39	87.0	87.9	-0.14	0.11	0.08	-0.22	188.7	192.6	193.4	197.4
40	86.9	90.0	-0.62	0.29	-0.04	-0.58	181.1	184.4	193.4	196.9
41	86.1	88.0	0.27	0.02	0.30	-0.03	192.6	192.9	193.4	193.7
42	85.8	87.3	-0.60	0.31	0.03	-0.63	180.1	185.3	193.4	198.9
TAKEOFF										
31	89.0	91.0	-0.40	0.28	0.16	-0.56	183.8	187.1	195.9	199.5
32	91.1	93.6	0.11	0.12	0.34	-0.23	190.8	218.8	195.9	224.7
33	90.1	92.2	0.09	0.12	0.34	-0.25	190.5	231.0	195.9	237.6
34	90.3	93.4	-0.33	0.25	0.18	-0.50	185.0	213.1	195.9	225.6
35	90.8	93.6	-0.69	0.37	0.06	-0.75	179.8	190.2	195.9	207.2
36	90.2	92.6	-0.13	0.19	0.26	-0.39	187.5	214.6	195.9	224.3
LEVEL FLY-BY WEST TO EAST										
43	87.3	90.7	0.72	-0.12	0.48	0.24	217.9	218.2	212.1	212.4
45	86.3	90.1	0.61	-0.17	0.27	0.35	220.7	222.8	212.1	214.1
47	86.4	90.2	0.50	0.05	0.60	-0.10	209.7	209.7	212.1	212.1
LEVEL FLY-BY EAST TO WEST										
44	84.9	87.9	0.30	-0.02	0.26	0.04	213.1	215.0	212.1	214.0
46	85.2	88.3	0.02	0.12	0.26	-0.24	206.4	210.0	212.1	215.8
48	84.2	87.3	-0.19	0.18	0.18	-0.37	203.3	207.3	212.1	216.2

NOTE 1: ATMOSPHERIC ASSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.9.a

BELL 206L HELICOPTER

DOT/TSC
8/ 4/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 16,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA (METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	88.2	91.2	1.57	-0.76	0.02	1.56	141.7	147.5	119.0	123.9
8	90.4	92.8	0.80	-0.40	-0.02	0.82	130.5	130.5	119.0	119.0
9	87.0	88.7	0.31	-0.18	-0.06	0.37	124.1	127.4	119.0	122.2
10	87.3	88.8	0.85	-0.34	0.03	0.82	128.6	133.2	119.0	121.5
11	87.4	88.6	0.29	-0.16	-0.04	0.33	123.4	123.7	119.0	119.3
12	88.9	92.3	1.24	-0.60	0.02	1.23	136.6	141.4	119.0	123.2
TAKEOFF										
1	85.9	84.3	-5.13	1.95	-0.86	-4.27	95.4	95.7	149.5	154.5
2	85.3	84.8	-3.30	1.31	-0.59	-2.70	110.6	110.6	149.5	149.8
3	86.3	85.6	-3.72	1.50	-0.62	-3.10	105.8	106.1	149.5	150.3
4	83.7	85.2	-3.37	1.36	-0.57	-2.80	109.4	109.4	149.5	149.8
5	85.6	34.4	-2.86	1.14	-0.48	-2.37	114.9	115.2	149.5	150.3
6	85.3	85.0	-3.90	1.53	-0.69	-3.21	105.2	105.2	149.5	150.7
LEVEL FLY-BY WEST TO EAST										
13	85.8	87.0	-0.35	0.13	-0.13	-0.27	145.4	145.4	150.0	150.0
15	85.9	87.3	-0.59	0.24	-0.12	-0.47	142.0	142.6	150.0	150.6
17	86.0	86.9	-1.24	0.51	-0.24	-1.00	133.5	135.0	150.0	151.7
LEVEL FLY-BY EAST TO WEST										
14	84.9	87.9	-1.99	0.82	-0.32	-1.67	124.1	218.5	150.0	264.2
16	86.5	88.2	-1.86	0.81	-0.22	-1.63	124.4	125.3	150.0	151.1
18	86.2	87.7	-0.90	0.38	-0.23	-0.75	137.5	139.0	150.0	151.6

NOTE 1: ATMOSPHERIC ABSORPTION @kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.9.b

BELL 206L HELICOPTER

DOT/TSC
8/10/78

CORRECTED EPNL

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE16,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING (ACTUAL)		DATA(METERS) (REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
7	84.6	84.7	0.89	-0.48	-0.10	0.99	216.1	220.1	193.4	196.9
8	83.7	83.8	0.19	-0.16	-0.15	0.34	200.6	202.7	193.4	195.4
9	-	81.3	0.49	-0.24	-0.00	0.50	204.2	204.2	193.4	193.4
10	82.6	82.0	-0.28	0.04	-0.19	-0.09	191.4	199.9	193.4	202.0
11	81.9	80.9	-0.16	0.00	-0.16	-0.01	193.2	197.5	193.4	197.6
12	82.9	84.3	0.37	-0.27	-0.18	0.55	205.7	207.3	193.4	194.8
TAKEOFF										
1	84.3	83.9	-1.85	0.70	-0.37	-1.48	181.7	182.0	213.5	213.8
2	84.3	84.4	-1.99	0.75	-0.44	-1.55	179.8	179.8	213.5	213.5
3	84.4	84.4	-1.93	0.75	-0.34	-1.59	179.5	180.1	213.5	214.2
4	84.5	84.3	-1.86	0.71	-0.37	-1.50	181.4	181.7	213.5	213.8
5	84.6	84.0	-1.52	0.57	-0.34	-1.19	187.5	189.3	213.5	215.6
6	84.1	83.7	-1.95	0.75	-0.37	-1.58	179.8	181.7	213.5	215.7
LEVEL FLY-BY WEST TO EAST										
13	83.1	83.7	-2.12	0.86	-0.34	-1.78	174.0	176.2	212.1	214.7
15	83.7	83.7	-1.18	0.43	-0.27	-0.91	192.0	193.2	212.1	213.4
17	83.5	83.7	-1.00	0.32	-0.35	-0.65	197.2	197.2	212.1	212.1
LEVEL FLY-BY EAST TO WEST										
14	85.0	84.5	-0.62	0.20	-0.19	-0.43	202.4	208.8	212.1	218.8
16	84.8	85.3	-0.55	0.19	-0.15	-0.39	203.0	207.3	212.1	216.5
18	85.0	85.7	-0.64	0.22	-0.19	-0.45	201.5	206.7	212.1	217.5

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN .2 dB/100 METERS.

Table C.9.c

BELL 206L HELICOPTER

DOT/TSC
8/11/78

CORRECTED EPNL

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE16,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	△ 1	△ 2	△ATM	△DIS	CPA	SR	CPA	SR
APPROACH										
7	88.8	88.6	0.18	-0.14	-0.10	0.28	199.6	199.6	193.4	193.4
8	88.3	89.0	-1.06	-0.15	-1.37	0.31	200.3	208.8	193.4	201.6
9	86.9	87.9	-0.48	0.14	-0.20	-0.28	187.5	192.3	193.4	198.4
10	87.7	88.1	0.51	-0.30	-0.10	0.61	207.0	207.3	193.4	193.7
11	87.1	87.9	0.08	-0.11	-0.15	0.23	198.4	198.7	193.4	193.7
12	88.7	89.4	0.28	-0.22	-0.17	0.44	203.3	204.5	193.4	194.5
TAKEOFF										
1	85.1	84.3	-1.99	0.80	-0.33	-1.66	177.7	183.8	213.5	220.8
2	84.3	84.1	-0.99	0.37	-0.22	-0.77	196.3	198.1	213.5	215.5
3	84.7	84.3	-1.35	0.47	-0.37	-0.98	191.4	196.0	213.5	218.6
4	84.5	83.9	-1.20	0.43	-0.30	-0.90	193.5	197.2	213.5	217.5
5	84.6	84.1	-1.06	0.41	-0.19	-0.87	194.2	198.1	213.5	217.8
6	84.5	84.6	-1.19	0.43	-0.28	-0.91	193.2	191.7	213.5	211.8
LEVEL FLY-BY WEST TO EAST										
13	84.8	84.7	1.03	-0.56	-0.14	1.18	241.4	242.0	212.1	212.6
15	85.2	85.3	0.35	-0.22	-0.11	0.46	223.1	223.7	212.1	212.7
17	85.6	85.4	-0.47	0.09	-0.27	-0.11	207.6	207.6	212.1	212.1
LEVEL FLY-BY EAST TO WEST										
14	85.9	86.1	-1.32	0.47	-0.24	-1.07	190.2	245.1	212.1	273.3
16	85.8	85.6	-1.35	0.48	-0.26	-1.09	189.9	259.1	212.1	289.4
18	85.4	85.1	-0.32	0.07	-0.16	-0.15	208.8	345.3	212.1	350.8

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.10.a

HUGHES 500 HELICOPTER

DOT/TSC
8/ 4/78

CORRECTED EPNL

SITE NO. 1 CENTERLINE - CENTEP DATE: JUNE 16,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA (METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	Δ 1	Δ 2	ΔATM	ΔDIS	CPA	SR	CPA	SR
APPROACH										
26	87.6	92.0	2.00	-0.97	0.02	1.98	148.7	151.8	119.0	121.4
28	85.7	87.6	2.15	-1.02	0.03	2.12	150.6	154.5	119.0	122.1
29	89.5	91.5	0.53	-0.27	-0.01	0.54	126.5	135.0	119.0	127.0
30	85.7	87.6	1.45	-0.64	0.13	1.32	137.8	152.4	119.0	131.6
31	88.4	91.1	0.84	-0.40	0.02	0.82	130.5	132.3	119.0	120.7
32	89.3	92.3	0.04	-0.02	-0.00	0.04	119.5	140.2	119.0	139.6
33	88.9	92.2	0.57	-0.28	0.00	0.57	126.8	145.4	119.0	136.4
41	89.3	93.0	1.14	-0.52	0.07	1.07	134.1	157.3	119.0	139.5
42	89.6	92.5	0.99	-0.44	0.08	0.91	131.7	132.9	119.0	120.1
43	89.3	91.2	0.87	-0.38	0.09	0.78	129.8	130.2	119.0	119.3
TAKEOFF										
19	83.5	83.9	-4.58	2.06	-0.48	-4.10	100.0	114.3	160.5	180.6
20	83.6	84.4	-6.35	2.87	-0.63	-5.72	82.9	101.2	160.5	190.7
22	83.7	83.9	-5.37	2.49	-0.50	-4.87	90.5	99.7	160.5	171.5
23	83.2	84.2	-4.63	2.06	-0.49	-4.14	100.0	109.4	160.5	173.6
24	84.0	84.4	-5.95	2.79	-0.35	-5.40	84.4	96.3	160.5	175.8
25	83.4	84.0	-5.60	2.58	-0.48	-5.13	88.7	98.5	160.5	174.3
LEVEL FLY-BY WEST TO EAST										
34	84.0	87.0	-2.67	1.16	-0.28	-2.39	114.9	124.4	150.0	162.3
36	83.9	86.3	-1.95	0.87	-0.16	-1.79	122.8	136.6	150.0	166.7
38	83.9	87.0	-1.21	0.56	-0.07	-1.15	132.0	140.5	150.0	159.7
40	83.9	84.8	-1.11	0.54	-0.00	-1.11	132.6	139.0	150.0	157.2
LEVEL FLY-BY EAST TO WEST										
35	84.2	86.9	-1.88	0.82	-0.19	-1.70	124.1	135.6	150.0	164.0
37	83.9	87.2	-1.16	0.53	-0.08	-1.08	132.9	144.5	150.0	163.0
39	84.1	86.9	-2.13	0.94	-0.18	-1.95	120.7	128.9	150.0	160.2

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND LESS THAN 12 dB/100 METERS.

Table C.10.b

HUGHES 500 HELICOPTER

CORRECTED EPNL

DOT/TSC
8/10/78

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE16,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	△ 1	△ 2	△ATM	△DIS	CPA	SR	CPA	SR
APPROACH										
26	82.7	84.2	0.54	-0.30	-0.07	0.61	207.0	208.5	193.4	194.8
28	82.4	82.5	1.21	-0.58	0.00	1.21	221.0	221.3	193.4	193.6
29	84.4	85.1	0.38	-0.21	-0.05	0.43	203.0	205.1	193.4	195.4
30	83.6	83.1	1.61	-0.40	0.73	0.88	211.8	217.0	193.4	198.1
31	83.5	83.4	-0.49	0.17	-0.13	-0.36	203.6	205.4	211.7	213.6
32	84.5	85.8	-0.11	0.01	-0.09	-0.02	192.9	193.9	193.4	194.3
33	84.2	85.4	0.34	-0.18	-0.03	0.36	201.5	201.8	193.4	193.7
41	84.5	85.8	0.78	-0.31	0.15	0.64	207.6	207.6	193.4	193.4
42	84.8	85.7	0.81	-0.31	0.17	0.64	207.9	208.5	193.4	193.9
43	85.1	84.3	0.33	-0.13	0.06	0.27	199.3	199.6	193.4	193.7
TAKEOFF										
19	84.7	82.1	-2.49	0.99	-0.47	-2.02	176.2	215.2	221.3	270.4
20	84.3	82.4	-2.55	1.01	-0.45	-2.10	175.3	181.4	221.3	229.0
22	83.9	81.7	-2.48	1.02	-0.38	-2.10	175.0	180.4	221.3	228.3
23	83.7	81.3	-2.95	1.01	-0.94	-2.01	175.3	248.4	221.3	313.7
24	84.3	82.3	-2.57	1.04	-0.42	-2.15	174.3	177.4	221.3	225.2
25	83.2	81.5	-2.62	1.03	-0.49	-2.13	174.7	198.1	221.3	251.1
LEVEL FLY-BY WEST TO EAST										
34	84.8	85.3	-1.39	0.58	-0.18	-1.31	185.6	186.5	212.1	213.1
36	84.5	85.2	-0.87	0.36	-0.13	-0.75	195.1	195.1	212.1	212.1
38	84.4	86.3	-0.86	0.38	-0.08	-0.77	194.5	195.1	212.1	212.7
40	84.7	86.1	-0.77	0.36	-0.05	-0.75	195.1	195.4	212.1	212.4
LEVEL FLY-BY EAST TO WEST										
35	85.6	86.2	-0.83	0.31	-0.20	-0.63	197.5	208.8	212.1	224.2
37	85.7	86.6	-0.48	0.16	-0.14	-0.34	204.2	204.2	212.1	212.1
39	86.2	87.0	-0.84	0.38	-0.05	-0.79	194.2	194.8	212.1	212.7

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

Table C.10.c

HUGHES 500 HELICOPTER

CORRECTED EPNL

DOT/TSC
8/11/78

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE16,1978

	CORRECTED		CORRECTIONS (dB)				TRACKING DATA(METERS) (ACTUAL)		(REFERENCE)	
EV	EPNL	PNLTM	△ 1	△ 2	△ATM	△DIS	CPA	SR	CPA	SR
APPROACH										
26	85.9	88.3	1.08	-0.53	-0.01	1.08	218.5	221.0	193.4	195.5
28	84.2	85.7	0.55	-0.30	-0.06	0.62	207.3	207.9	193.4	193.9
29	86.0	87.4	-0.18	0.01	-0.16	-0.02	192.9	196.6	193.4	197.0
30	84.1	83.6	0.17	-0.11	-0.06	0.23	198.4	198.4	193.4	193.4
31	86.1	87.7	0.11	-0.09	-0.07	0.17	197.2	197.2	193.4	193.4
32	86.1	87.9	-0.13	-0.01	-0.15	0.02	193.9	193.9	193.4	193.4
33	86.9	88.3	0.05	-0.03	0.00	0.05	194.5	194.8	193.4	193.7
41	86.4	88.4	0.27	-0.11	0.06	0.22	198.1	202.1	193.4	197.2
42	86.4	87.9	0.05	-0.02	0.02	0.04	194.2	195.1	193.4	194.3
43	86.6	87.6	0.27	-0.16	-0.05	0.33	200.6	202.7	193.4	195.4
TAKEOFF										
19	82.9	81.4	-1.91	0.72	-0.44	-1.47	187.8	220.9	221.3	269.9
20	83.2	81.6	-2.71	1.11	-0.41	-2.31	171.3	173.7	221.3	224.5
22	82.8	81.4	-2.36	0.92	-0.48	-1.88	179.2	222.2	221.3	274.4
23	83.2	81.8	-1.70	0.69	-0.28	-1.42	188.7	202.7	221.3	237.8
24	83.2	81.5	-2.31	1.05	-0.40	-1.90	173.7	175.0	221.3	222.9
25	82.8	81.2	-2.41	0.95	-0.47	-1.94	178.0	179.2	221.3	222.9
LEVEL FLY-BY WEST TO EAST										
34	85.7	86.8	-0.96	0.35	-0.25	-0.71	195.7	196.6	212.1	213.1
36	86.7	87.4	-0.40	0.34	-0.09	-0.31	196.0	196.0	212.1	212.1
38	85.6	86.0	-0.19	0.07	-0.04	-0.15	208.5	209.7	212.1	213.3
40	85.8	86.6	-0.16	0.07	-0.01	-0.15	208.5	245.1	212.1	249.3
LEVEL FLY-BY EAST TO WEST										
35	84.1	85.7	-0.88	0.36	-0.13	-0.74	195.1	201.8	212.1	219.4
37	84.0	85.9	-0.67	0.26	-0.14	-0.54	199.6	200.9	212.1	213.4
39	85.1	86.3	-0.91	0.38	-0.14	-0.77	194.5	198.7	212.1	216.7

NOTE 1: ATMOSPHERIC ABSORPTION 8kHz 1/3 OCTAVE BAND
LESS THAN 12 dB/100 METERS.

APPENDIX D

Appendix D contains "As Measured" data with application of EPNL tone corrections from 50 Hz to 10 KHz. Data are presented for CL-C, SL-S, and SL-N microphones.

Table D.1.a

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
11/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
1	98.8	87.2	94.0	97.2	100.6	101.9	11.0	1.3	-0.1
3	96.3	82.2	89.0	92.7	96.2	97.5	18.0	1.3	-0.2
4	98.0	84.5	91.3	94.9	98.0	99.0	19.0	1.0	-0.1
5	97.4	83.3	90.2	93.7	97.0	98.5	21.0	1.5	-0.2
6	97.9	83.9	90.9	94.4	97.8	99.4	17.5	1.6	-0.3
TAKEOFF									
7	95.6	84.0	89.3	87.4	96.1	97.7	12.5	1.6	-0.6
8	94.7	82.7	87.7	86.6	94.5	96.4	13.5	1.9	-0.7
9	95.7	84.9	90.3	89.3	97.3	99.3	10.5	2.1	-0.9
10	94.6	82.3	87.6	86.5	94.6	96.6	14.0	2.1	-0.8
11	95.1	82.9	88.1	86.9	94.9	96.6	14.5	1.8	-0.9
12	96.4	85.6	91.5	88.9	98.5	100.1	9.5	1.6	-0.7
LEVEL FLY-BY WEST TO EAST									
13	90.2	82.7	86.9	86.7	93.4	94.6	8.0	1.2	-0.5
15	89.8	82.1	86.3	86.1	92.7	94.0	8.5	1.3	-0.7
17	90.9	84.0	87.9	87.7	94.2	95.5	7.5	1.3	-0.7
LEVEL FLY-BY EAST TO WEST									
14	92.2	83.1	87.2	86.7	93.8	95.1	10.5	1.3	-0.6
16	92.2	83.5	87.1	87.2	93.6	94.7	10.0	1.1	-0.6
18	90.7	80.3	84.8	87.9	91.5	93.1	12.0	2.1	-0.9

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.1.b

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
1	96.0	81.5	87.1	89.0	94.3	96.3	17.5	2.2	-0.3
3	93.8	80.4	85.1	85.9	91.9	93.6	23.5	1.7	-0.3
4	94.1	80.2	85.5	87.8	92.9	94.3	19.5	1.6	-0.1
5	93.9	80.1	84.9	86.5	91.7	93.0	25.0	1.3	-0.3
6	94.5	80.8	85.7	86.5	92.5	93.9	20.0	1.4	-0.3
TAKEOFF									
7	94.5	83.3	87.4	86.8	94.3	96.5	16.0	2.2	-0.2
8	94.3	83.0	87.3	86.4	93.8	96.0	18.0	2.3	-0.1
9	95.7	84.9	89.1	88.3	96.3	98.1	14.0	2.3	-0.2
10	94.3	82.3	86.8	85.8	93.3	95.0	20.0	1.7	-0.0
11	94.4	83.1	87.4	86.5	94.1	96.3	17.5	2.3	-0.1
12	95.2	83.8	88.0	87.5	95.2	97.4	15.0	2.3	-0.2
LEVEL FLY-BY WEST TO EAST									
13	92.0	81.9	86.6	89.0	93.2	94.4	11.0	1.5	-0.5
15	92.1	81.5	86.1	89.4	92.8	94.4	10.0	1.7	-0.5
17	92.4	82.6	87.4	89.9	94.3	95.9	9.0	1.6	-0.4
LEVEL FLY-BY EAST TO WEST									
14	91.7	81.5	85.6	86.1	92.2	94.5	13.5	2.5	-0.4
16	91.2	80.2	84.6	85.3	91.2	93.1	14.0	2.4	-0.4
18	92.5	82.6	86.6	86.6	93.9	95.9	11.5	2.1	-0.6

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.1.c

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	ΔEPNL **
APPROACH									
1	95.4	81.5	86.8	88.3	94.6	96.3	17.5	1.7	-0.2
3	94.9	81.2	85.8	88.1	93.2	94.9	20.5	1.9	-0.2
4	94.9	80.7	85.6	87.1	92.9	94.7	22.0	1.8	-0.3
5	95.3	80.7	85.5	87.0	93.0	94.9	23.5	1.9	-0.2
6	95.1	81.3	86.0	87.3	93.4	95.1	21.0	1.7	-0.2
TAKEOFF									
7	95.1	84.3	88.3	88.5	95.6	98.1	13.5	2.5	-0.3
8	95.0	84.0	87.9	88.3	95.1	97.2	15.5	2.1	-0.2
9	95.8	84.9	88.9	88.9	96.2	99.1	12.5	2.9	-0.6
10	95.2	83.6	87.4	87.4	94.6	96.9	16.5	2.4	-0.3
11	94.7	83.2	87.2	87.4	94.4	96.9	15.5	2.5	-0.2
12	95.1	85.3	89.4	89.2	96.3	98.7	11.5	2.4	-0.1
LEVEL FLY-BY WEST TO EAST									
13	89.9	79.8	83.7	84.8	90.6	92.0	13.5	1.4	-0.3
15	90.1	80.2	84.4	84.7	91.6	93.0	10.0	1.4	-0.3
17	90.3	80.5	84.7	85.3	91.5	92.8	11.0	1.3	-0.2
LEVEL FLY-BY EAST TO WEST									
14	92.7	82.8	87.0	90.2	94.5	96.6	9.0	2.1	-0.8
16	92.3	82.4	86.9	89.5	94.0	95.9	10.0	1.9	-0.6
18	91.6	80.7	84.9	87.5	91.6	93.0	15.0	2.3	-0.4

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.2.a

DOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
11/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	DASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
25	94.0	82.9	87.0	89.3	93.7	95.1	21.0	1.7	-1.0
26	94.3	83.0	87.4	89.6	94.1	95.8	20.0	1.6	-1.0
27	95.0	85.7	89.7	91.0	96.5	97.6	15.5	1.1	-1.0
28	94.0	84.2	88.0	89.6	94.7	96.4	14.5	1.8	-1.0
29	94.4	84.7	88.7	90.2	95.6	96.8	18.0	1.3	-1.1
30	94.1	85.5	89.5	91.0	96.1	97.2	12.5	1.1	-1.0
TAKEOFF									
19	92.5	81.1	86.8	88.2	94.1	96.2	10.0	2.2	-1.0
20	91.1	79.5	84.9	87.2	92.3	94.5	11.0	2.2	-1.0
21	91.0	79.5	84.7	87.0	91.9	94.2	11.0	2.3	-1.1
22	90.6	78.7	84.2	86.9	91.4	93.6	12.0	2.2	-0.9
23	90.8	78.5	84.2	86.5	91.7	93.8	12.5	2.2	-1.1
24	90.5	78.0	83.5	85.7	90.9	93.1	12.5	2.3	-1.2
LEVEL FLY-BY WEST TO EAST									
31	89.9	79.9	85.4	88.2	91.9	94.2	8.0	2.3	-1.6
33	89.9	79.5	84.9	87.7	91.6	94.1	8.0	2.5	-1.7
34	89.6	79.5	85.0	87.5	91.4	93.8	8.0	2.4	-1.8
36	89.4	79.5	84.8	87.4	91.1	93.6	8.0	2.5	-1.8
38	89.7	79.4	84.7	88.0	91.0	93.5	8.0	2.5	-1.9
LEVEL FLY-BY EAST TO WEST									
32	90.3	79.9	85.1	87.9	91.4	93.9	9.0	2.6	-1.8
35	89.3	78.8	83.9	86.5	90.2	92.8	9.5	2.6	-1.8
37	90.3	80.2	85.5	88.6	91.8	94.2	8.5	2.5	-1.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.2.b

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
11/10/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
25	89.4	75.6	79.9	82.3	86.8	87.8	28.0	1.2	-0.7
26	90.0	76.4	80.5	83.1	87.3	88.4	32.0	1.1	-0.7
27	90.0	74.6	79.6	83.6	87.0	88.3	37.5	1.3	-0.9
28	89.2	75.3	80.3	82.5	87.5	88.4	36.5	1.0	-0.7
29	89.5	75.0	79.9	82.4	86.7	88.0	33.5	1.3	-0.8
30	89.0	74.8	80.1	82.8	87.3	88.5	31.0	1.3	-0.7
TAKEOFF									
19	88.7	77.3	81.4	84.9	88.2	89.4	16.0	1.2	-1.1
20	88.8	75.4	80.2	84.1	87.1	88.7	19.0	2.2	-0.8
21	89.2	76.4	80.8	84.2	87.8	90.2	17.5	2.5	-1.1
22	88.2	75.2	79.5	84.3	86.6	88.4	19.0	1.9	-
23	88.4	75.9	80.2	84.2	87.4	89.3	18.5	2.0	-0.9
24	88.8	75.6	80.2	83.7	87.3	89.8	19.0	2.5	-
LEVEL FLY-BY WEST TO EAST									
31	87.4	78.1	82.4	85.8	88.6	89.7	11.0	1.4	-0.8
33	87.4	77.6	82.1	85.3	88.5	90.0	12.0	1.5	-0.7
34	88.0	78.5	82.8	86.4	89.3	90.7	10.0	1.6	-1.0
36	87.9	77.8	82.2	85.8	88.6	89.3	13.0	1.2	-0.9
38	88.0	78.5	82.5	87.0	88.7	89.8	12.5	1.5	-0.9
LEVEL FLY-BY EAST TO WEST									
32	89.0	77.5	82.7	85.8	90.2	92.2	13.0	2.0	-1.0
35	89.5	77.5	82.6	85.7	90.0	92.1	14.5	2.2	-1.1
37	90.0	79.2	83.6	87.9	90.8	92.7	13.0	1.9	-1.2

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.2.c

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 12,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
25	89.2	76.4	81.7	86.7	88.1	89.0	23.5	0.9	-0.5
26	89.1	76.6	81.4	86.7	88.3	89.4	29.5	1.1	-0.4
27	92.1	78.5	83.3	87.7	90.0	90.8	28.0	0.8	-0.5
28	91.1	77.8	82.2	87.5	89.0	90.0	25.0	1.0	-0.5
29	91.4	78.7	83.2	88.1	89.7	90.7	25.5	1.0	-0.5
30	91.2	78.6	83.1	87.7	90.0	91.4	22.0	1.4	-0.4
TAKEOFF									
19	89.5	78.5	83.5	90.6	90.2	91.9	16.0	2.1	-0.3
20	88.9	75.9	81.0	88.6	88.0	90.5	20.0	2.5	-0.5
21	88.6	76.9	81.7	88.5	88.5	90.6	19.0	2.2	-0.3
22	88.2	76.7	81.7	88.6	88.6	90.6	18.5	2.1	-0.3
23	88.4	76.8	81.7	87.7	88.6	91.0	19.5	2.5	-
24	-	76.8	81.6	87.4	88.4	90.3	-	1.9	-
LEVEL FLY-BY WEST TO EAST									
31	88.7	78.1	82.8	86.6	90.3	92.4	10.5	2.2	-1.1
33	88.5	78.3	83.0	86.6	90.4	92.6	10.5	2.2	-1.0
34	88.2	77.1	81.7	86.4	89.0	91.0	12.0	2.2	-1.2
36	88.5	77.8	82.8	86.6	90.0	92.3	10.5	2.3	-1.3
38	89.2	78.5	82.4	87.0	89.4	91.7	10.5	2.3	-1.0
LEVEL FLY-BY EAST TO WEST									
32	88.1	77.9	82.3	85.8	88.7	89.4	14.5	1.0	-0.8
35	87.7	77.0	81.2	84.5	87.4	88.7	21.5	1.3	-0.6
37	88.6	78.3	82.7	87.2	89.3	90.3	12.0	1.1	-0.7

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D 3.1

BELL 206L HELICOPTER

DOT/TSC
11/13/78

SUMMARY NOISE EVENT DATA

AS MEASURED *

SITE NO. 1 CENTERLINE CENTER DATE: JUNE 13,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	92.4	78.9	83.4	86.6	90.8	91.9	40.0	1.1	-0.6
8	93.1	79.6	83.7	86.3	90.9	92.0	43.0	1.1	-0.8
9	93.5	80.3	84.9	89.3	91.8	93.1	26.0	1.3	-0.7
10	-	76.9	82.8	87.1	89.1	89.9	-	0.8	-
11	93.4	78.5	83.4	88.0	90.1	91.3	43.0	1.2	-0.7
12	92.4	80.0	84.0	86.1	90.5	91.9	32.5	1.4	-0.7
TAKEOFF									
1	86.4	72.4	77.4	78.9	83.9	85.8	36.5	1.9	-1.0
2	-	70.2	75.8	79.5	83.0	85.0	-	2.0	-
3	-	69.6	75.0	79.0	81.9	83.7	-	1.9	-
4	83.0	74.1	79.4	80.2	85.0	86.7	32.5	1.9	-0.8
5	86.7	69.5	75.9	79.6	81.7	83.6	60.0	1.8	-0.7
6	-	69.9	75.1	78.8	81.9	83.7	-	1.8	-
LEVEL FLY-BY WEST TO EAST									
13	85.8	74.9	80.5	83.1	87.8	89.3	11.5	1.5	-0.8
15	86.9	75.3	80.6	84.3	87.9	89.8	15.0	1.0	-0.7
17	88.8	77.2	82.4	83.7	89.4	90.8	10.5	1.6	-0.8
LEVEL FLY-BY EAST TO WEST									
14	87.2	74.7	80.9	82.9	86.7	87.7	23.5	1.4	-0.7
16	88.6	77.4	82.6	85.6	89.6	90.4	16.5	1.1	-0.6
18	-	76.0	81.2	85.9	87.9	88.7	-	1.0	-

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.3.b

BELL 206L HELICOPTER

DOT/TSC
11/10/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 13,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	89.8	75.5	79.5	83.5	85.6	87.9	54.5	2.3	-0.8
8	90.1	75.2	80.5	84.7	87.3	89.1	45.5	1.7	-0.5
9	89.7	74.3	79.0	83.3	86.0	87.2	42.5	1.4	-0.4
10	89.6	73.0	78.4	83.2	85.6	86.4	53.5	0.7	-0.5
11	89.9	73.9	79.2	83.9	85.9	86.6	46.5	0.7	-0.4
12	86.5	73.4	78.8	83.6	86.1	87.6	38.5	1.6	-0.5
TAKEOFF									
1	87.3	72.3	76.7	79.4	83.1	84.9	42.0	2.0	-1.2
2	87.9	71.8	77.0	79.6	83.8	86.4	35.5	2.6	-1.4
3	87.3	72.3	76.9	79.1	83.3	85.7	33.5	2.4	-1.3
4	87.5	74.9	78.6	79.7	84.3	87.0	29.5	2.2	-
5	87.8	74.4	77.8	78.7	84.5	86.8	41.5	2.4	-0.9
6	88.1	74.4	78.0	78.3	83.7	86.0	53.5	2.2	-
LEVEL FLY-BY WEST TO EAST									
13	83.5	71.7	77.3	83.9	84.2	85.3	13.5	1.1	-0.2
15	85.3	74.3	79.2	86.2	86.2	87.2	15.0	1.0	-0.6
17	84.7	73.6	78.9	86.1	85.4	86.0	17.5	1.2	-0.7
LEVEL FLY-BY EAST TO WEST									
14	86.4	73.5	78.8	84.9	85.5	86.9	21.0	1.4	-0.8
16	88.2	75.3	80.3	86.2	86.9	88.3	23.0	1.5	-0.6
18	87.1	75.2	80.0	85.7	86.4	87.8	18.5	1.4	-0.4

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.3.c

BELL 206L HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 13,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	ΔEPNL **
APPROACH									
7	88.6	73.1	77.5	85.5	84.2	85.6	66.5	1.6	-0.5
8	89.5	74.1	79.1	85.9	85.4	86.9	56.0	1.5	-0.7
9	89.4	77.0	82.0	85.7	86.5	90.1	27.0	1.6	-1.0
10	88.6	76.5	81.3	85.3	87.5	90.0	36.0	2.5	-0.8
11	88.3	75.5	80.9	86.8	87.3	90.0	29.0	2.7	-0.9
12	88.4	73.3	78.5	86.1	85.1	86.6	41.0	1.5	-0.7
TAKEOFF									
1	87.4	73.7	78.8	82.6	85.5	87.4	32.0	1.9	-1.2
2	87.9	72.0	76.9	81.3	84.2	86.5	35.5	2.2	-1.2
3	87.7	72.5	77.4	81.7	84.1	86.3	37.0	2.2	-1.4
4	88.6	74.7	79.5	83.5	86.2	88.1	29.0	1.9	-0.9
5	87.9	73.2	77.8	81.6	84.2	86.4	47.0	2.2	-1.1
6	88.3	74.1	78.5	81.2	84.2	86.2	56.5	2.0	-1.2
LEVEL FLY-BY WEST TO EAST									
13	86.0	75.4	80.6	83.2	87.1	89.0	14.5	2.1	-1.0
15	86.9	75.2	79.9	85.9	86.8	87.9	15.0	1.8	-0.6
17	85.5	73.8	78.9	84.6	85.4	87.3	14.5	2.0	-0.8
LEVEL FLY-BY EAST TO WEST									
14	85.3	73.1	78.4	84.5	85.3	86.6	25.5	1.3	-0.7
16	86.5	73.7	79.0	87.5	85.9	87.1	29.0	1.3	-0.7
18	87.4	73.9	80.1	87.7	86.8	87.8	20.5	1.0	-0.6

* - INDEXES (A, D, ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - Δ EPNL, THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.4 a

SIKORSKY S61 HELICOPTER

DOT/TSC
11/13/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	DASEL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	97.8	85.9	91.8	94.9	98.9	99.6	15.0	0.8	-0.7
8	95.4	84.1	89.4	91.9	96.3	97.2	14.5	1.2	-0.7
9	96.1	85.4	91.2	94.0	98.2	98.8	13.5	0.6	-0.7
10	94.8	84.2	89.6	91.8	96.7	97.3	15.5	0.6	-0.6
11	97.2	85.9	91.2	93.4	97.9	99.1	15.0	1.3	-0.7
12	97.7	85.2	90.7	93.5	97.5	98.7	17.5	1.4	-0.8
TAKEOFF									
1	96.6	86.7	92.1	89.8	98.7	100.1	9.5	1.4	-1.3
2	97.4	87.7	93.4	89.9	99.9	101.6	9.0	1.7	-1.3
3	95.8	85.2	90.2	89.7	96.8	98.5	11.0	1.7	-1.4
4	95.2	84.4	89.6	88.8	95.6	97.3	13.5	1.9	-1.3
5	95.5	84.2	89.1	88.6	95.6	97.6	12.5	2.0	-1.3
6	95.6	84.4	89.5	88.4	96.1	98.1	12.5	2.1	-1.4
LEVEL FLY-BY WEST TO EAST									
13	92.3	94.4	89.3	89.2	96.3	97.3	6.5	1.0	-1.1
19	91.4	82.9	88.2	87.9	95.2	96.4	7.5	1.3	-1.2
21	89.4	80.5	85.7	85.5	92.7	93.5	8.5	0.8	-1.1
23	89.3	78.4	83.9	83.6	90.7	91.9	13.0	1.3	-0.9
LEVEL FLY-BY EAST TO WEST									
14	93.8	85.0	89.7	88.6	96.4	97.1	9.5	0.8	-0.9
16	93.2	84.1	88.8	87.9	95.5	96.6	10.0	1.1	-1.0
18	93.1	83.4	88.1	88.2	94.9	96.1	10.0	1.2	-1.0
20	93.9	85.4	89.7	89.2	96.3	97.5	8.5	1.2	-1.0
22	92.3	80.7	85.5	85.1	92.1	93.7	14.0	1.7	-1.1
24	93.1	80.6	85.0	86.0	91.7	92.8	29.0	1.3	-0.9

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.4.b

SIKORSKY S61 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(F)	TC	△EPNL **
APPROACH									
7	93.1	80.8	85.3	86.8	92.1	92.9	25.5	0.8	-0.6
8	93.2	80.1	84.4	85.5	91.3	92.1	27.0	1.4	-0.7
9	93.1	79.3	83.7	84.7	90.4	91.3	36.0	1.1	-0.6
10	92.3	80.7	84.9	84.4	91.5	92.3	26.0	0.8	-0.7
11	92.6	79.6	84.0	84.7	90.7	91.6	27.5	0.9	-0.7
12	92.6	79.9	84.4	85.2	91.2	92.0	29.5	0.8	-0.5
TAKEOFF									
1	95.3	83.7	88.9	87.5	95.7	97.1	16.0	1.5	-0.9
2	95.0	83.3	88.5	87.0	95.1	96.8	17.0	1.7	-1.0
3	95.9	84.3	89.1	87.4	95.6	96.9	18.0	1.5	-1.0
4	94.8	84.3	89.2	87.4	95.8	97.2	15.0	1.5	-0.9
5	94.6	82.0	86.9	85.8	93.5	95.1	20.5	1.6	-0.8
6	94.8	82.4	87.1	85.7	93.8	95.2	19.0	1.8	-0.9
LEVEL FLY-BY WEST TO EAST									
13	93.1	85.6	90.1	91.2	97.1	97.9	6.5	1.6	-0.9
19	92.6	85.0	89.5	89.5	96.4	97.9	6.5	1.5	-0.9
21	90.1	82.2	86.7	86.1	93.6	94.0	9.0	0.4	-0.8
23	89.0	79.8	84.2	83.8	90.9	91.5	14.0	0.7	-0.7
LEVEL FLY-BY EAST TO WEST									
14	93.8	84.7	89.2	87.9	96.1	96.3	12.0	0.3	-0.7
16	94.1	85.3	89.4	88.2	95.9	96.6	13.0	1.0	-0.7
18	93.2	83.4	87.9	87.0	94.6	95.5	12.5	0.8	-0.9
20	94.1	84.1	88.5	87.7	95.2	96.2	16.0	1.1	-0.9
22	91.7	81.7	85.7	85.2	92.1	92.8	18.0	1.0	-0.8
24	92.4	80.1	84.1	83.8	90.7	91.4	35.0	0.7	-0.7

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.4.c

SIKORSKY S61 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	94.2	83.0	88.7	90.5	95.7	96.6	12.0	0.8	-0.6
8	92.2	80.0	84.5	85.5	91.1	92.1	21.5	1.0	-0.8
9	92.7	81.7	87.0	88.6	94.0	94.6	17.0	0.7	-0.7
10	92.1	80.6	85.1	85.6	91.8	92.9	21.0	1.1	-0.8
11	92.7	80.3	84.6	86.6	91.4	92.4	20.5	1.0	-0.6
12	93.4	80.6	85.2	86.6	92.3	93.1	22.0	0.7	-0.7
TAKEOFF									
1	93.5	82.0	36.1	85.8	92.7	94.2	18.0	1.5	-1.1
2	93.3	82.0	86.5	86.2	93.1	94.6	17.0	1.6	-1.1
3	93.8	82.8	87.0	86.8	93.4	95.1	16.5	1.8	-1.0
4	93.3	82.5	86.6	86.4	93.2	94.5	17.5	1.4	-0.9
5	94.0	82.6	36.8	86.2	93.4	94.7	21.0	1.7	-1.1
6	93.8	83.7	87.8	87.0	94.2	95.0	16.0	1.8	-1.0
LEVEL FLY-BY WEST TO EAST									
13	92.5	84.6	88.8	88.3	95.4	96.7	9.0	1.3	-1.1
19	89.8	82.7	86.8	86.1	93.2	94.0	8.0	0.8	-0.6
21	89.3	80.2	84.7	85.6	91.3	92.0	11.0	0.8	-0.8
23	87.5	76.5	80.8	83.4	87.4	88.2	14.5	1.3	-0.6
LEVEL FLY-BY EAST TO WEST									
14	92.1	84.1	88.3	88.3	94.5	95.3	11.5	0.9	-0.8
16	92.1	83.7	87.8	87.8	94.2	95.1	11.5	0.9	-0.8
18	90.8	82.8	37.0	87.1	93.3	94.1	13.5	0.8	-0.7
20	92.0	83.1	87.4	87.6	93.7	94.6	12.0	0.9	-0.8
22	89.5	79.7	84.0	83.3	90.7	91.8	16.5	1.1	-1.0
24	91.0	79.2	83.2	83.5	89.5	90.4	26.5	0.9	-0.7

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.5.a

SIKORSKY CH53 HELICOPTER

DOT/TSC
11/10/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
25	102.1	90.8	96.5	99.1	103.4	104.0	17.5	0.6	-0.8
26	102.5	89.7	96.1	100.2	102.5	103.6	17.0	1.1	-0.6
27	100.5	91.0	96.6	98.8	103.4	104.4	10.5	0.9	-0.5
28	102.1	93.0	97.8	99.3	104.7	105.5	15.5	1.2	-0.8
29	-	92.0	97.2	99.9	104.9	105.9	-	1.1	-
30	-	89.7	94.9	98.5	102.2	103.2	-	1.0	-
TAKEOFF									
32	96.4	85.8	90.1	94.1	97.5	98.9	12.0	1.4	-0.8
33	96.2	85.7	90.8	93.0	98.2	99.2	10.0	1.0	-0.7
34	96.2	85.6	90.3	93.3	97.5	98.7	12.0	1.4	-0.8
35	96.2	85.7	90.4	93.3	97.6	98.5	14.0	0.9	-0.6
36	-	85.1	89.9	93.3	97.3	98.1	-	0.9	-
37	95.8	85.1	89.5	93.4	96.5	97.9	13.5	1.4	-0.6
LEVEL FLY-BY WEST TO EAST									
38	92.6	84.9	88.8	92.7	95.9	96.5	10.5	0.6	-0.5
40	97.0	87.7	92.7	98.8	99.6	101.5	8.0	1.9	-0.7
LEVEL FLY-BY EAST TO WEST									
39	97.3	88.0	92.3	96.5	99.3	100.1	12.5	1.1	-0.8

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.5.b

SIKORSKY CH53 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
25	97.8	84.6	89.2	91.1	95.6	97.2	21.5	1.9	-
26	97.6	85.7	89.5	91.9	96.1	97.8	19.0	2.1	-0.9
27	95.4	85.3	90.0	92.1	97.0	98.6	18.5	1.6	-0.6
28	97.7	85.3	89.9	92.7	96.7	98.3	23.5	1.8	-0.7
29	96.3	82.9	87.3	90.6	94.8	95.9	27.0	1.1	-0.8
30	98.3	86.5	90.9	92.3	97.4	98.6	23.5	2.0	-1.0
TAKEOFF									
32	95.1	84.1	88.5	92.8	95.8	96.5	14.0	1.4	-0.7
33	-	85.5	89.9	93.4	97.1	98.5	-	1.4	-
34	95.3	85.4	89.9	93.3	97.3	97.9	13.0	0.6	-0.5
35	95.2	85.1	89.4	93.5	96.1	97.4	13.5	1.2	-0.4
36	94.7	83.8	88.3	92.8	95.1	96.7	14.5	1.5	-0.3
37	94.7	84.2	88.7	93.0	95.4	97.1	14.5	1.7	-0.3
LEVEL FLY-BY WEST TO EAST									
38	-	87.2	90.7	96.9	97.3	99.0	-	1.7	-
40	95.9	86.3	90.5	100.6	97.0	97.6	13.5	0.7	-0.5
LEVEL FLY-BY EAST TO WEST									
39	95.4	87.2	91.9	95.0	96.7	99.4	11.0	0.7	-0.3

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.5.c

SIKORSKY CH53 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 14,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
25	98.2	87.0	92.9	95.7	100.1	101.1	12.0	1.0	-0.7
26	98.6	86.8	92.9	95.6	99.7	100.4	18.0	0.7	-0.6
27	97.8	86.9	92.0	94.2	98.9	100.0	15.5	1.5	-0.9
28	98.8	87.7	92.5	94.8	99.4	100.6	17.0	1.7	-0.9
29	99.4	88.7	94.4	96.7	101.4	102.4	13.0	1.0	-0.8
30	98.0	85.5	91.0	93.3	97.8	98.4	21.5	0.7	-0.8
TAKEOFF									
32	95.7	85.5	89.8	92.5	97.0	98.7	11.0	1.8	-0.5
33	-	84.5	89.1	92.5	96.0	96.9	-	1.0	-
34	95.2	84.6	89.0	92.5	96.0	97.5	14.5	1.4	-0.5
35	95.1	84.4	88.7	91.9	96.1	97.1	13.5	1.1	-0.6
36	95.1	84.3	88.8	92.3	95.6	96.6	15.5	1.6	-0.6
37	95.8	85.2	89.7	92.7	97.2	98.4	13.5	1.2	-0.7
LEVEL FLY-BY WEST TO EAST									
38	93.2	82.9	87.9	92.1	94.3	95.7	11.5	2.0	-1.2
40	94.6	85.0	90.0	95.2	97.3	98.3	11.5	1.0	-0.5
LEVEL FLY-BY EAST TO WEST									
39	98.8	90.0	94.0	101.5	100.5	101.6	13.0	1.3	-0.6

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.6.a

BELL 212 HELICOPTER

DOT/TSC
11/13/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	98.1	85.9	92.3	96.4	98.5	99.7	20.0	1.2	-0.6
8	98.6	84.6	90.2	94.9	96.5	97.9	25.5	1.3	-0.5
9	97.6	83.2	90.1	95.1	96.3	97.1	25.5	0.7	-0.4
10	98.2	84.5	90.7	95.4	96.6	97.7	24.0	1.7	-0.6
11	97.7	85.7	92.3	96.7	97.9	99.1	19.5	1.1	-0.5
12	97.6	83.9	90.5	95.3	96.5	97.3	24.5	1.1	-0.6
TAKEOFF									
1	94.1	83.1	88.3	94.5	95.3	96.2	13.5	1.8	-0.8
2	93.2	81.3	87.1	93.5	94.2	95.1	12.5	0.9	-0.9
3	94.6	82.5	88.7	95.5	95.9	96.7	14.0	0.8	-0.8
4	95.2	84.6	89.5	96.6	96.9	97.6	12.5	0.6	-0.8
5	93.4	82.1	87.7	94.5	94.8	95.7	16.0	1.0	-0.8
6	93.0	80.7	86.9	94.4	93.9	94.9	13.0	1.0	-0.8
LEVEL FLY-BY WEST TO EAST									
13	94.5	79.4	86.0	93.2	93.4	94.4	23.0	1.2	-0.7
15	96.0	81.5	88.7	95.9	95.8	96.9	18.5	1.0	-0.4
17	94.4	79.8	86.6	93.0	93.7	94.8	21.5	1.1	-0.4
LEVEL FLY-BY EAST TO WEST									
14	96.4	81.7	88.4	94.8	96.3	97.2	19.5	0.9	-0.6
16	95.8	81.5	87.9	94.2	95.1	96.4	21.5	1.5	-0.5
18	96.1	82.9	88.4	94.7	95.6	96.8	20.0	1.2	-0.5

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.6.b

BELL 212 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	92.9	78.5	84.3	88.2	91.1	92.4	30.0	1.4	-0.4
8	91.8	75.5	81.9	85.8	89.1	90.6	33.0	1.6	-0.4
9	91.8	77.0	82.6	87.0	89.8	90.7	32.0	1.0	-0.4
10	92.9	77.5	83.2	88.3	90.2	91.1	33.0	0.8	-0.4
11	93.1	79.1	84.7	88.6	91.5	92.5	29.0	1.1	-0.3
12	90.7	75.5	81.5	85.6	88.7	90.3	25.0	1.7	-0.4
TAKEOFF									
1	90.9	80.9	84.5	89.4	91.8	93.5	15.0	1.7	-0.7
2	90.7	80.1	84.0	88.2	91.1	93.0	14.5	2.0	-0.9
3	91.6	82.2	84.7	88.3	91.0	92.2	27.0	1.2	-0.5
4	91.4	79.0	83.3	90.6	90.5	92.1	25.0	1.7	-0.4
5	91.2	79.5	83.4	88.7	90.7	92.3	25.5	1.7	-0.6
6	90.2	79.0	82.9	87.7	89.9	91.8	16.5	1.9	-
LEVEL FLY-BY WEST TO EAST									
13	93.7	81.4	86.1	93.7	92.5	94.2	19.5	1.6	-0.6
15	94.5	81.6	86.6	95.3	93.6	94.9	18.0	1.8	-0.7
17	93.5	79.7	84.6	93.1	91.2	92.9	24.0	2.0	-0.6
LEVEL FLY-BY EAST TO WEST									
14	91.8	78.1	82.4	91.2	89.2	90.5	28.0	1.3	-0.6
16	92.8	79.3	83.8	91.8	91.2	92.3	26.0	1.3	-0.6
18	93.0	80.6	85.4	92.2	92.7	93.8	21.0	1.1	-0.5

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.6.c

BELL 212 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	DASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	95.7	82.3	87.6	92.1	93.9	95.4	31.5	1.9	-0.7
8	95.4	79.9	85.7	91.5	91.8	93.7	37.0	2.0	-0.8
9	95.7	78.5	85.1	92.2	91.5	93.1	36.0	1.7	-0.8
10	94.9	78.3	84.0	91.5	90.3	91.5	40.0	2.9	-0.9
11	95.5	80.8	87.0	92.4	93.1	94.3	31.5	2.0	-0.7
12	94.8	79.2	84.7	91.6	91.5	93.0	36.0	1.6	-0.7
TAKEOFF									
1	92.9	81.6	85.3	92.6	92.1	93.9	20.0	1.9	-0.7
2	93.0	83.0	86.4	92.4	93.2	95.1	16.0	1.9	-0.7
3	92.9	80.9	84.7	92.2	91.3	92.8	30.0	1.5	-0.6
4	92.9	80.3	84.5	93.1	91.0	92.5	26.5	1.6	-0.4
5	93.4	83.5	86.8	92.5	93.7	95.5	18.0	1.9	-0.7
6	93.3	82.9	86.1	92.6	92.8	94.5	22.5	1.8	-
LEVEL FLY-BY WEST TO EAST									
13	91.7	76.3	82.8	92.5	87.9	89.8	32.5	2.0	-0.6
15	92.6	77.7	84.8	94.3	90.5	91.9	24.5	1.6	-0.6
17	91.9	76.4	83.2	92.9	88.1	89.7	31.5	1.7	-0.8
LEVEL FLY-BY EAST TO WEST									
14	96.4	80.9	88.0	97.0	94.7	96.2	24.5	1.7	-0.4
16	94.7	78.0	86.1	95.4	92.4	94.1	26.5	1.8	-0.4
18	94.9	78.8	86.8	95.7	93.0	94.3	26.5	1.6	-0.4

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.7.a

SIKORSKY CH53 HELICOPTER

DOT/TSC
11/13/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
28	100.0	91.0	96.6	99.7	103.1	103.7	9.5	0.6	-0.6
29	98.8	88.1	94.6	98.6	101.5	102.2	12.0	0.7	-0.5
30	101.5	89.4	94.9	97.6	101.7	102.6	16.0	1.0	-0.7
TAKEOFF									
19	98.7	90.5	95.4	97.5	102.7	103.3	6.5	0.5	-0.7
20	97.2	89.0	93.5	95.7	100.6	101.1	8.0	0.7	-0.7
21	97.3	89.7	93.7	96.2	100.5	101.6	7.0	1.1	-0.3
22	98.9	89.9	94.3	95.9	101.5	102.2	8.5	0.7	-1.0
23	97.4	87.7	92.5	95.0	99.8	100.5	9.0	0.8	-0.8
24	95.8	86.7	91.6	93.3	98.9	99.6	8.5	0.7	-0.7
LEVEL FLY-BY WEST TO EAST									
25	96.5	87.6	92.4	98.4	99.3	100.8	9.0	1.6	-0.4
27	97.0	88.3	93.1	99.6	100.0	101.4	9.0	1.7	-0.4
LEVEL FLY-BY EAST TO WEST									
26	98.7	90.3	94.4	100.6	101.3	102.8	8.5	1.6	-0.6

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.7.b

SIKORSKY CH53 HELICOPTER

DOT/TSC
11/10/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
28	-	83.0	88.5	91.5	96.0	96.6	-	0.7	-
29	94.6	82.1	87.9	90.7	95.1	96.1	21.0	1.1	-0.6
30	97.2	85.1	89.6	91.9	96.3	98.1	17.0	1.8	-0.8
TAKEOFF									
19	96.5	86.2	90.9	94.3	98.4	99.2	10.5	0.9	-0.7
20	96.0	85.2	90.0	93.1	97.1	98.2	12.5	1.7	-0.6
21	96.7	85.9	90.6	93.4	97.6	98.8	12.0	1.6	-0.7
22	96.6	85.6	90.4	93.3	97.6	98.8	13.0	1.6	-0.6
23	96.3	85.6	90.3	93.0	97.2	98.4	13.5	1.6	-0.6
24	95.7	84.9	89.8	93.7	97.0	98.2	12.0	1.5	-0.5
LEVEL FLY-BY WEST TO EAST									
25	-	87.4	91.9	98.5	98.6	99.2	-	0.6	-
27	97.4	87.8	92.6	100.5	99.4	100.0	11.0	0.9	-0.5
LEVEL FLY-BY EAST TO WEST									
26	95.4	86.0	90.9	94.5	97.9	98.4	11.5	0.5	-0.4

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.7.c

SIKORSKY CH53 HELICOPTER

SUMMARY NOISE LEVEL DATA

AS MEASURED *

DOT/TSC
11/13/78

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
28	97.2	86.9	92.6	94.6	99.3	100.3	14.5	1.0	-0.8
29	97.0	86.9	92.8	95.2	99.8	100.9	11.5	1.1	-0.8
30	96.5	82.4	88.4	91.5	95.6	96.4	21.5	0.8	-0.7
TAKEOFF									
19	95.9	85.9	90.6	93.8	98.2	99.1	9.5	1.0	-0.6
20	95.1	85.4	90.1	93.1	97.3	98.5	11.0	1.3	-0.4
21	95.4	84.5	89.3	92.3	96.4	97.7	11.5	1.5	-0.7
22	95.3	84.7	89.4	92.2	96.3	97.7	12.5	1.4	-0.7
23	94.9	84.8	89.4	92.2	96.2	97.5	12.0	1.4	-0.5
24	93.7	83.1	87.7	92.1	94.6	96.2	12.0	1.6	-0.7
LEVEL FLY-BY WEST TO EAST									
25	93.9	84.1	88.6	94.9	95.6	96.3	15.0	0.8	-0.3
27	94.7	85.9	90.6	94.6	97.7	98.7	10.5	1.2	-0.6
LEVEL FLY-BY EAST TO WEST									
26	-	84.9	89.2	100.2	96.2	97.5	-	1.3	-

* - INDEXES (A, D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.8.a

GAZELLE SA-3140 HELICOPTER (FRENCH) DOT/TSC 11/10/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
37	89.9	78.8	83.7	85.6	90.4	92.1	14.5	1.8	-0.2
38	89.0	77.8	82.5	83.9	89.1	90.7	16.0	1.6	-0.1
39	91.6	80.0	84.7	86.5	91.6	92.9	13.5	1.3	-0.2
40	90.7	79.9	84.5	86.5	91.3	93.0	11.5	1.7	-0.1
41	89.9	79.9	84.0	85.1	90.4	91.9	12.5	1.7	-0.0
42	89.8	79.0	83.8	85.4	90.5	92.2	11.0	1.9	0.0
TAKEOFF									
31	90.4	79.5	85.8	80.7	92.2	93.3	11.0	1.1	-0.1
32	93.9	83.8	91.3	83.5	96.6	98.3	8.0	1.8	-0.1
33	93.7	84.5	91.7	84.3	97.2	99.3	6.5	2.1	-0.0
34	93.9	84.4	91.7	84.4	97.2	99.0	7.3	1.8	-0.0
35	93.1	82.8	89.7	83.0	95.5	97.2	8.0	1.7	-0.0
36	94.5	85.0	92.3	84.8	97.6	99.5	7.0	1.9	-0.0
LEVEL FLY-BY WEST TO EAST									
43	86.9	77.0	82.5	83.1	89.1	91.2	8.0	2.1	0.0
45	85.5	76.0	81.3	80.6	87.7	89.5	6.5	1.8	0.0
47	84.6	75.8	80.2	79.7	86.9	88.5	3.5	1.5	0.0
LEVEL FLY-BY EAST TO WEST									
44	-	76.0	80.4	77.3	86.7	88.5	-	1.8	-
46	85.1	75.2	80.0	81.4	86.7	88.6	10.0	1.9	-0.0
48	85.1	76.2	80.5	82.6	87.1	88.9	10.5	1.8	-0.0

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 600 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

GAZELLE SA-3140 HELICOPTER (FRENCH)

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
37	90.0	78.6	83.4	85.0	90.0	91.0	19.5	1.2	-0.1
38	89.9	76.2	83.1	84.3	89.6	91.2	17.0	2.1	-0.1
39	91.6	80.2	85.0	86.4	91.4	92.2	19.5	0.9	-0.3
40	90.5	80.2	84.8	86.3	91.4	92.8	16.0	1.5	-0.3
41	89.8	79.0	83.7	85.2	90.3	91.4	16.0	1.2	-0.0
42	89.1	77.1	82.1	83.7	88.9	90.6	17.0	1.7	-0.5
TAKEOFF									
31	93.1	80.6	88.1	83.4	93.6	95.6	13.0	2.3	-0.5
32	94.9	82.5	90.4	83.5	95.9	97.4	11.5	1.6	-0.2
33	96.4	84.5	92.5	85.7	98.0	100.2	8.5	2.2	-0.5
34	94.4	82.3	89.0	85.6	95.8	97.9	9.5	2.1	-0.4
35	93.2	81.1	88.8	84.5	94.7	96.3	9.0	1.6	-0.6
36	94.9	83.2	90.5	85.4	96.5	98.9	9.0	2.4	-0.5
LEVEL FLY-BY WEST TO EAST									
43	87.8	78.3	84.4	80.6	90.1	92.2	9.0	2.1	-0.0
45	86.2	77.1	82.8	80.3	88.7	90.6	9.0	1.9	-0.0
47	85.7	75.4	81.3	79.7	87.8	89.1	11.0	1.3	-0.0
LEVEL FLY-BY EAST TO WEST									
44	86.0	74.9	80.2	84.3	86.6	87.7	12.5	1.1	0.0
46	86.3	75.7	80.6	84.7	87.1	88.6	13.0	1.5	-0.0
48	86.3	76.0	81.3	85.0	87.5	89.3	10.5	1.8	-0.1

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.8.c

GAZELLE SA-314G HELICOPTER (FRENCH)

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 15,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
37	86.7	74.0	78.8	81.1	85.5	88.2	17.0	2.7	-0.2
38	86.1	73.6	78.0	80.0	84.7	87.6	21.5	2.9	-0.4
39	87.2	73.9	78.4	80.4	85.1	88.0	20.5	3.0	-0.2
40	87.7	76.2	80.5	81.4	87.4	90.6	16.0	3.3	-0.4
41	86.3	74.0	79.0	80.3	85.7	87.7	19.0	2.0	-0.5
42	86.3	73.7	78.3	80.4	85.1	87.9	17.0	3.1	-0.2
TAKEOFF									
31	89.4	76.4	83.5	78.8	89.2	91.4	12.5	2.1	-0.3
32	91.3	78.7	86.7	79.4	92.1	94.0	13.0	2.0	-0.4
33	90.1	78.2	85.5	79.1	91.0	92.2	14.0	1.2	-0.2
34	90.6	79.4	87.2	80.3	92.6	94.1	11.0	1.5	-0.3
35	91.2	79.3	86.8	80.5	92.5	94.3	12.0	1.8	-0.0
36	90.4	78.4	86.1	79.5	91.6	92.9	13.0	1.3	-0.3
LEVEL FLY-BY WEST TO EAST									
43	86.8	77.2	82.4	86.1	88.3	90.0	10.5	1.7	-0.1
45	85.9	76.8	81.5	85.4	87.7	89.5	11.0	1.9	-0.0
47	85.9	76.3	82.3	85.7	88.1	89.7	8.5	1.6	-0.0
LEVEL FLY-BY EAST TO WEST									
44	84.7	75.2	80.4	80.0	86.3	87.6	11.5	1.3	-0.1
46	85.1	75.5	80.9	80.1	87.1	88.3	11.0	1.2	-0.1
48	84.4	75.0	79.8	79.9	86.3	87.5	12.0	1.3	-0.2

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.9.a

BELL 206L HELICOPTER

DOT/TSC
11/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	88.0	77.7	82.9	86.8	89.4	90.0	16.0	0.7	-0.6
8	90.7	80.3	85.2	88.6	91.7	92.7	12.5	1.0	-0.7
9	87.4	75.4	81.1	86.6	88.1	89.2	14.5	1.1	-0.6
10	87.4	75.4	81.0	86.7	87.8	88.8	17.5	1.0	-0.6
11	87.9	75.8	81.4	87.0	88.1	89.3	15.5	1.3	-0.7
12	88.9	79.1	84.3	87.4	90.8	91.7	13.5	1.0	-0.7
TAKEOFF									
1	90.0	76.8	82.5	84.5	89.1	90.8	18.0	1.9	-1.0
2	88.3	75.3	81.2	82.7	87.9	89.3	20.5	1.6	-1.0
3	89.4	76.4	82.4	82.7	89.0	90.2	20.0	1.4	-0.9
4	89.6	76.1	81.6	82.4	88.2	89.4	20.5	1.2	-0.9
5	88.2	75.2	80.8	82.2	87.1	88.5	26.0	1.3	-1.0
6	88.6	76.0	81.9	82.7	88.6	90.0	19.0	1.4	-1.0
LEVEL FLY-BY WEST TO EAST									
13	86.0	74.7	79.7	83.0	86.5	87.9	15.5	1.4	-0.8
15	86.1	75.4	80.3	83.3	86.9	88.0	16.0	1.2	-0.8
17	86.6	75.7	80.5	83.8	87.4	88.5	16.0	1.1	-0.7
LEVEL FLY-BY EAST TO WEST									
14	87.9	77.3	81.9	86.5	88.7	90.3	13.0	1.6	-0.6
16	87.4	77.3	82.3	85.6	89.2	90.4	11.5	1.2	-0.8
18	86.6	76.1	81.0	84.3	87.5	88.6	15.0	1.0	-0.8

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.9.b

BELL 206L HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	84.7	71.1	77.0	81.3	83.5	84.3	28.0	0.9	-0.5
8	84.3	70.5	76.4	80.1	83.2	84.1	25.5	1.0	-0.6
9	-	68.7	73.9	79.5	80.0	81.2	-	1.2	-
10	83.4	69.1	74.8	80.7	81.8	82.7	29.5	0.8	-0.5
11	82.8	68.6	74.0	80.3	80.8	81.8	29.0	1.2	-0.7
12	83.4	70.2	76.5	79.8	83.5	84.7	21.5	1.1	-0.6
TAKEOFF									
1	86.6	73.6	78.4	81.7	85.3	87.6	21.5	2.3	-1.1
2	86.7	74.1	79.3	82.4	86.0	88.4	17.0	2.4	-1.1
3	86.8	73.8	79.3	82.6	86.0	88.4	17.5	2.4	-1.2
4	86.6	73.7	79.0	82.3	85.8	88.1	17.5	2.4	-1.0
5	86.6	73.3	78.5	81.9	85.2	87.6	21.5	2.4	-1.1
6	86.4	73.2	78.5	82.0	85.2	87.6	23.0	2.4	-1.2
LEVEL FLY-BY WEST TO EAST									
13	84.9	74.1	78.8	85.8	85.5	86.8	17.5	1.4	-0.5
15	84.9	73.5	78.4	86.3	84.7	85.5	19.5	0.9	-0.5
17	84.8	73.4	78.3	85.5	84.4	85.5	19.5	1.1	-0.6
LEVEL FLY-BY EAST TO WEST									
14	85.3	73.3	78.3	85.3	84.8	86.6	19.5	1.8	-0.4
16	85.7	73.7	78.7	85.0	85.5	87.4	18.0	1.9	-0.6
18	85.9	74.3	79.3	85.2	86.1	87.4	19.5	1.3	-0.5

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.9.c

BELL 206L HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
7	89.5	76.7	82.2	87.4	88.2	89.2	24.0	1.1	-0.8
8	90.5	77.6	82.0	87.6	88.5	90.1	22.5	1.6	-1.1
9	88.0	76.3	81.6	87.5	88.2	88.7	17.5	0.7	-0.8
10	88.4	75.6	80.4	86.2	87.4	88.9	26.0	1.6	-1.0
11	88.3	75.4	80.4	86.9	87.4	88.7	20.5	1.3	-1.1
12	89.9	77.3	82.6	86.8	88.8	90.2	18.5	1.5	-1.2
TAKEOFF									
1	87.1	73.4	78.8	85.9	85.9	88.0	21.0	2.2	-0.8
2	86.2	72.6	78.0	85.5	84.8	87.1	23.0	2.3	-1.2
3	86.6	72.8	78.3	85.5	85.3	87.5	20.5	2.3	-1.0
4	86.3	72.7	78.0	85.4	84.7	86.9	21.5	2.2	-1.0
5	86.4	72.6	78.2	85.0	84.9	87.3	24.5	2.4	-1.1
6	86.3	73.0	78.4	85.7	85.3	87.6	20.5	2.3	-1.0
LEVEL FLY-BY WEST TO EAST									
13	85.0	72.2	76.9	84.3	83.4	84.9	25.5	1.5	-0.6
15	85.6	73.9	78.5	85.3	84.7	86.2	22.0	1.5	-0.6
17	86.5	74.7	79.4	85.7	85.5	87.0	20.0	1.4	-0.4
LEVEL FLY-BY EAST TO WEST									
14	87.3	74.3	80.9	90.3	87.1	88.7	18.0	1.6	-0.6
16	87.2	74.9	80.0	89.6	86.4	87.7	16.0	1.3	-0.5
18	86.1	73.5	78.5	88.2	84.8	86.5	21.5	1.8	-0.4

* - INDEXES (A, D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE, HUMIDITY, AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL , THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.10.a

HUGHES 500 HELICOPTER

DOT/TSC
11/ 8/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 1 CENTERLINE - CENTER DATE: JUNE 16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
26	87.6	79.4	83.4	84.6	89.7	91.4	11.5	1.7	-1.0
28	85.7	74.3	78.7	80.7	85.2	86.8	21.5	1.6	-1.1
29	90.2	80.9	84.5	85.8	90.8	92.5	13.5	1.7	-0.9
30	85.9	75.0	79.2	80.8	86.1	87.6	16.0	1.5	-1.0
31	89.1	80.0	83.7	85.1	90.2	91.9	12.0	1.7	-1.1
32	90.3	82.1	85.7	86.8	92.0	93.5	8.5	1.4	-1.0
33	89.6	81.7	85.1	86.0	91.3	93.0	11.5	1.7	-1.0
41	89.7	81.5	85.0	86.0	91.4	92.9	9.5	1.6	-1.0
42	90.2	80.9	84.6	85.8	91.2	92.4	12.0	1.8	-1.1
43	89.8	79.9	83.5	85.0	89.9	91.6	15.5	1.9	-1.0
TAKEOFF									
19	87.0	76.9	81.4	83.4	88.2	89.3	12.5	1.2	-1.0
20	88.2	78.8	83.3	85.0	90.4	92.0	9.5	1.6	-1.1
22	87.5	77.6	82.1	84.1	89.1	90.3	11.5	1.2	-1.0
23	86.7	77.2	81.6	83.5	88.5	90.2	11.0	1.6	-0.9
24	88.1	78.6	83.1	84.9	90.3	91.4	10.0	1.2	-0.9
25	87.5	77.9	82.4	84.2	89.5	91.0	10.5	1.7	-1.0
LEVEL FLY-BY WEST TO EAST									
34	86.5	77.7	82.4	84.5	89.3	90.6	10.0	1.2	-1.0
36	86.0	76.5	81.1	83.6	88.0	89.0	11.5	1.1	-1.0
38	85.7	76.2	81.0	83.2	87.9	89.1	11.0	1.5	-1.1
40	85.5	76.4	81.0	82.7	87.6	89.4	10.5	1.8	-1.0
LEVEL FLY-BY EAST TO WEST									
35	86.3	76.8	81.5	83.8	88.5	89.7	12.5	1.1	-1.0
37	85.6	76.2	81.0	83.4	88.0	89.1	10.5	1.1	-1.0
39	86.1	77.1	81.8	84.0	88.7	89.9	10.5	1.2	-0.9

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.10.b

HUGHES 500 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 4 SIDELINE 150 M. SOUTH DATE: JUNE 16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
26	82.6	72.1	76.3	80.0	82.5	84.1	24.5	1.5	-0.2
28	82.5	70.2	74.3	77.4	80.8	82.1	29.0	1.4	-0.7
29	85.1	73.5	78.0	80.1	84.5	85.6	21.0	1.2	-0.8
30	83.2	70.0	74.3	77.7	80.5	81.8	31.0	1.2	-0.7
31	84.7	72.7	77.1	79.4	83.6	84.7	25.0	1.1	-0.8
32	85.6	74.4	79.1	81.2	85.6	86.7	20.5	1.2	-0.9
33	84.6	73.0	77.3	79.9	82.3	85.1	25.0	3.1	-0.5
41	84.7	72.8	77.6	79.7	84.1	85.4	20.0	1.3	-0.7
42	85.2	72.8	77.3	79.2	83.9	85.1	23.5	1.2	-0.8
43	85.6	72.8	77.3	79.6	83.8	85.0	32.0	1.2	-0.7
TAKEOFF									
19	87.0	73.1	77.1	79.0	84.1	85.7	27.5	1.7	-0.8
20	86.5	73.5	77.5	79.6	84.1	85.9	22.5	1.8	-0.6
22	86.2	73.3	76.9	79.1	83.5	85.5	24.5	2.1	-0.8
23	86.5	73.0	77.2	78.9	83.7	85.8	23.0	2.7	-0.8
24	86.6	73.7	77.9	79.1	84.4	86.3	22.5	2.0	-0.8
25	85.6	72.7	76.7	79.2	83.3	85.2	21.5	1.9	-0.8
LEVEL FLY-BY WEST TO EAST									
34	86.5	75.8	80.3	85.4	86.5	87.4	15.5	1.0	-0.9
36	85.9	75.5	79.8	85.2	85.9	87.1	14.5	1.2	-1.0
38	85.8	75.9	80.1	85.0	86.9	87.8	14.0	1.0	-0.9
40	95.9	75.8	80.0	85.4	86.7	87.8	14.5	1.1	-0.7
LEVEL FLY-BY EAST TO WEST									
35	87.1	76.4	80.3	82.2	86.6	87.7	15.0	1.1	-1.0
37	87.0	77.0	80.7	82.2	86.8	87.8	15.5	1.0	-1.0
39	87.6	77.4	81.4	82.6	87.5	89.2	16.5	1.8	-1.0

* - INDEXES (A,D, ,ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

Table D.10.c

HUGHES 500 HELICOPTER

DOT/TSC
11/ 9/78

SUMMARY NOISE LEVEL DATA

AS MEASURED *

SITE NO. 5 SIDELINE 150 M. NORTH DATE: JUNE 16,1978

EVENT	EPNL	DBA(M)	DBD(M)	OASPL	PNL(M)	PNLT(M)	DUR(P)	TC	△EPNL **
APPROACH									
26	86.1	76.4	80.1	82.5	87.0	88.3	16.5	1.3	-0.7
28	84.7	74.4	78.2	81.0	84.8	85.3	24.0	0.5	-0.7
29	87.1	77.9	81.1	82.6	87.4	88.5	18.0	1.1	-1.0
30	84.8	72.9	76.8	81.4	83.1	84.0	26.5	1.1	-0.7
31	86.9	76.7	80.4	82.7	87.4	88.8	14.5	1.4	-0.8
32	86.8	77.5	81.2	83.8	87.7	88.7	17.0	1.1	-0.6
33	87.9	78.2	81.5	84.2	88.0	89.3	18.0	1.5	-1.0
41	87.1	77.7	81.2	83.3	87.9	89.0	15.0	1.1	-0.9
42	87.4	77.3	81.0	83.5	87.6	88.8	16.5	1.2	-1.0
43	87.4	76.7	80.2	82.7	87.0	88.1	20.0	1.1	-0.9
TAKEOFF									
19	85.5	72.2	76.5	83.6	82.9	85.1	23.0	2.2	-1.4
20	85.9	73.9	77.9	85.6	84.1	85.8	20.5	1.7	-1.1
22	85.4	73.2	77.2	84.5	83.6	85.2	21.0	1.5	-1.2
23	85.5	72.7	77.0	84.8	83.2	85.1	23.0	2.0	-1.3
24	85.6	72.6	77.0	85.0	83.3	85.1	23.0	2.2	-1.2
25	85.4	72.6	77.0	85.1	83.2	85.0	28.5	1.7	-1.2
LEVEL FLY-BY WEST TO EAST									
34	87.1	77.6	81.5	83.5	87.4	88.3	13.5	1.2	-0.8
36	87.8	76.5	80.9	82.6	87.4	88.7	14.5	1.3	-1.0
38	86.6	75.9	79.7	82.5	85.8	87.0	18.0	1.2	-1.0
40	86.8	76.7	80.4	82.3	86.4	87.8	14.0	1.4	-1.0
LEVEL FLY-BY EAST TO WEST									
35	85.6	75.4	79.8	86.2	86.2	87.3	13.0	1.2	-1.0
37	85.4	75.7	79.9	85.8	86.3	87.6	12.5	1.3	-1.0
39	86.5	76.7	81.1	87.6	86.9	88.0	12.5	1.1	-0.9

* - INDEXES (A,D, .ETC.) CALCULATED USING MEASURED DATA UNCORRECTED FOR TEMPERATURE,HUMIDITY,AND AIRCRAFT DEVIATION FROM FLIGHT TRACK

** - △ EPNL ,THE CHANGE IN EPNL ASSUMING TONES 800 Hz AND BELOW TO BE PSEUDOTONES AND EXCLUDING THEM FROM THE PNLT CALCULATIONS

APPENDIX E

Appendix E contains individual event takeoff trajectory data.

Figure E.1.1

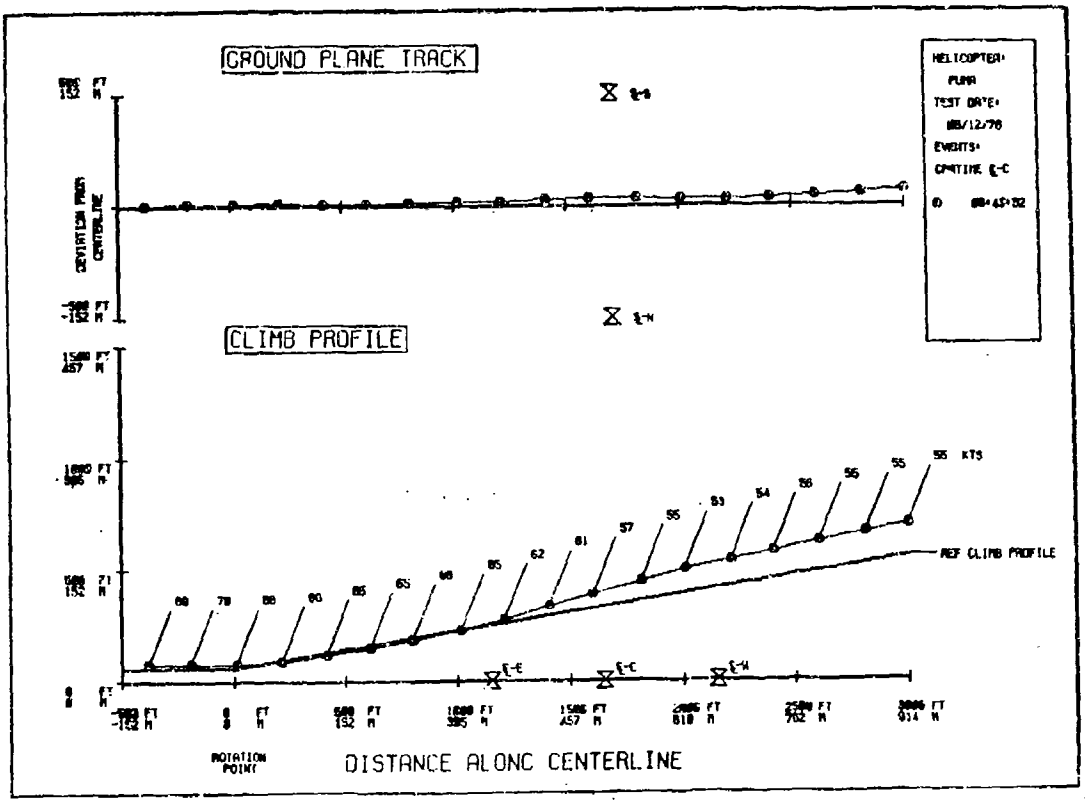


Figure E.1.2

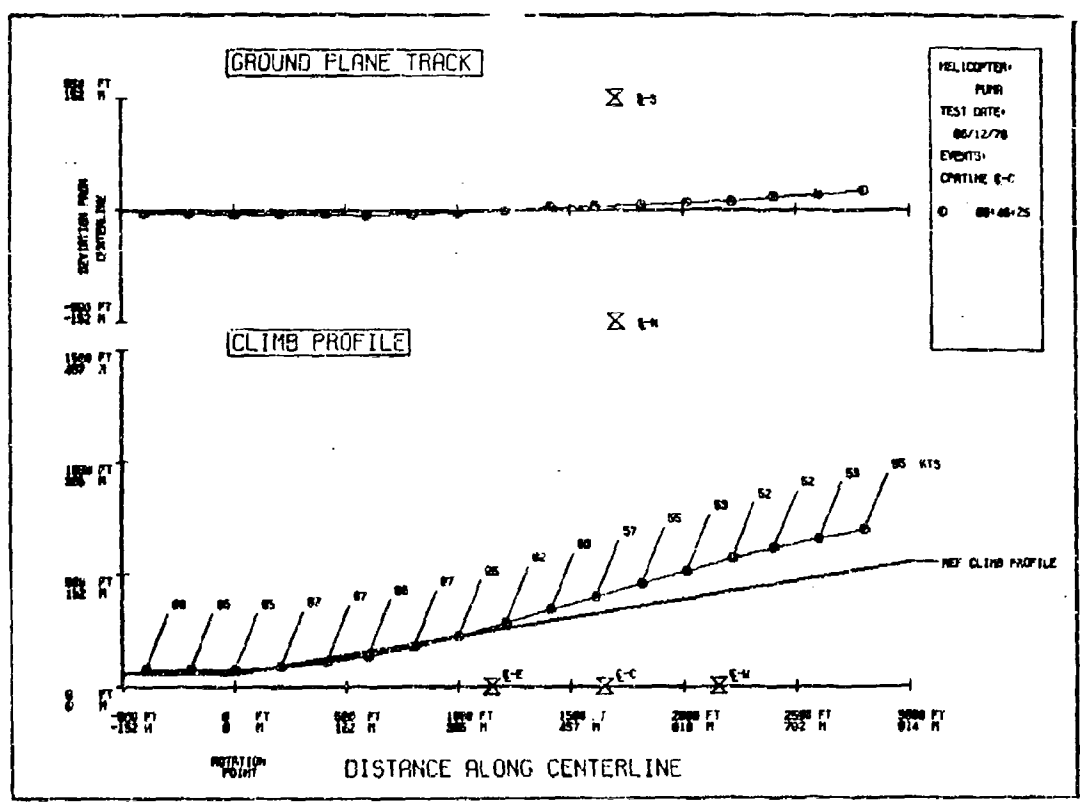


Figure E.1.3

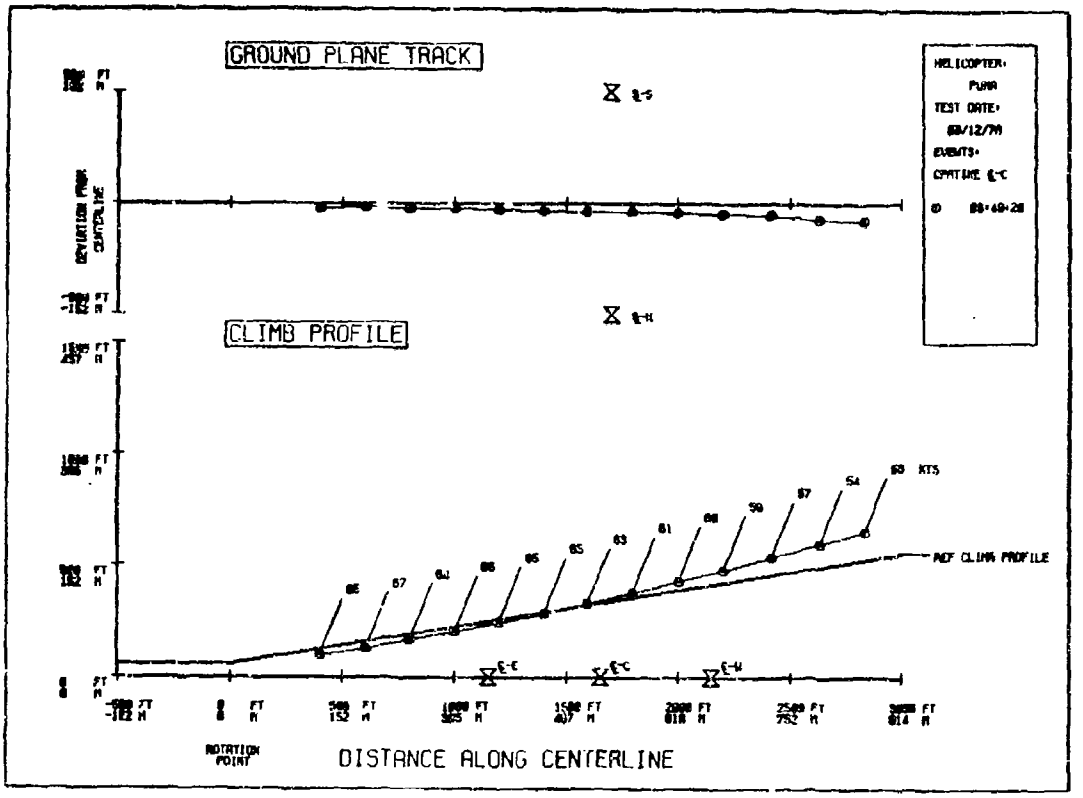


Figure E.1.4

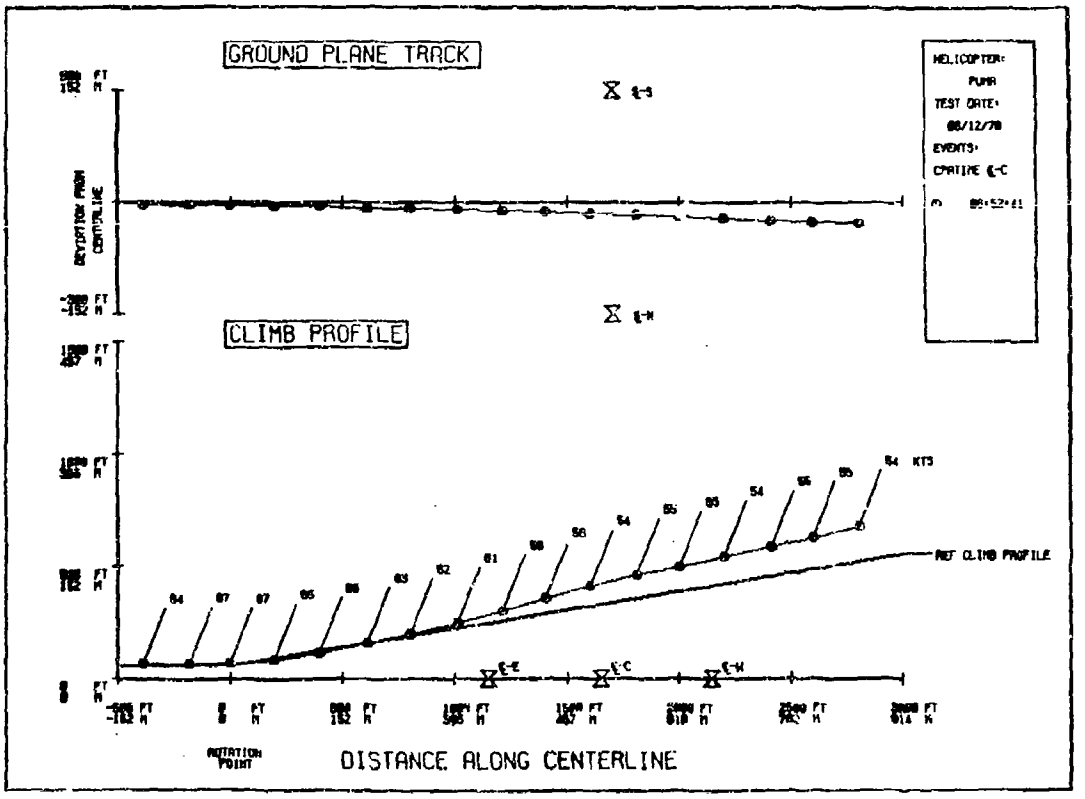


Figure E.1.5

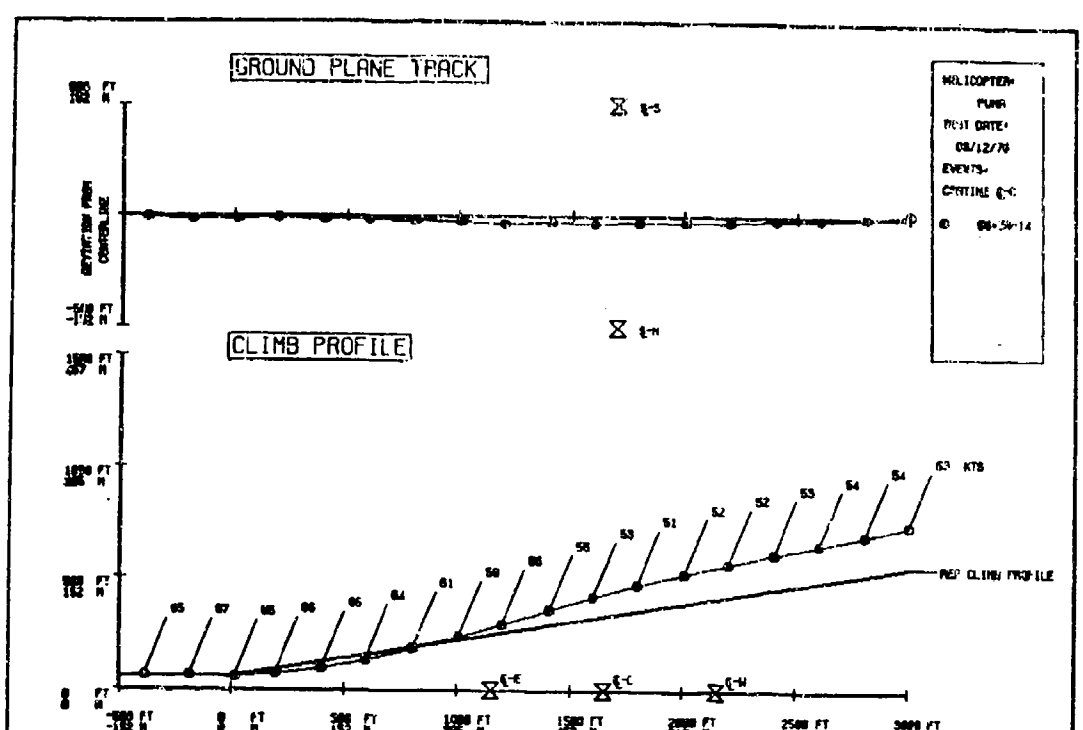


Figure E.1.6

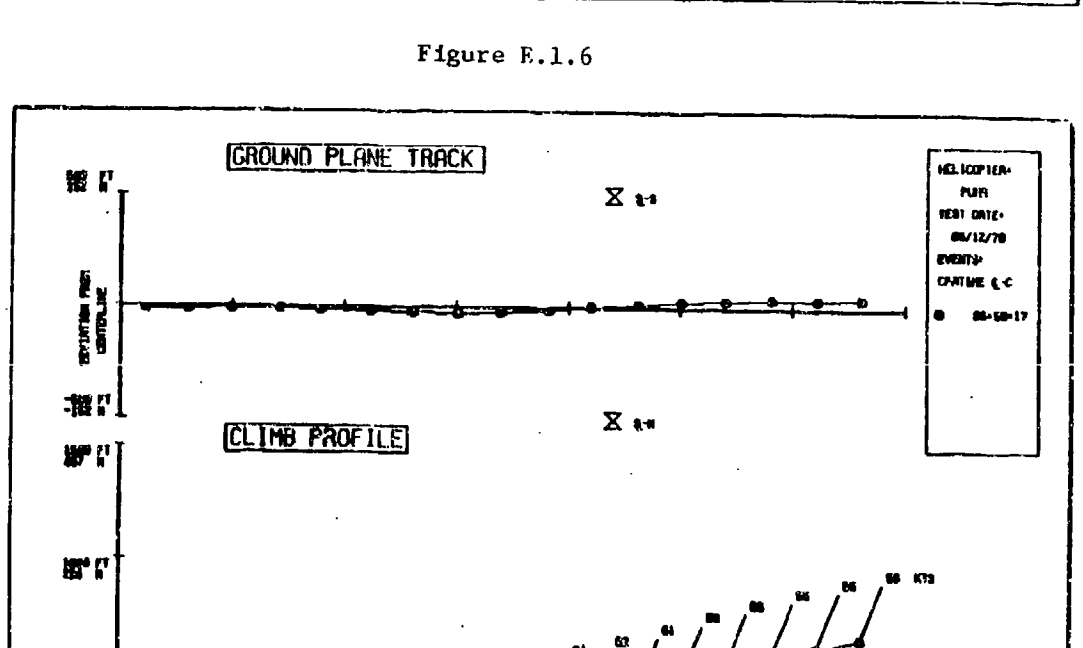


Figure E.2.1

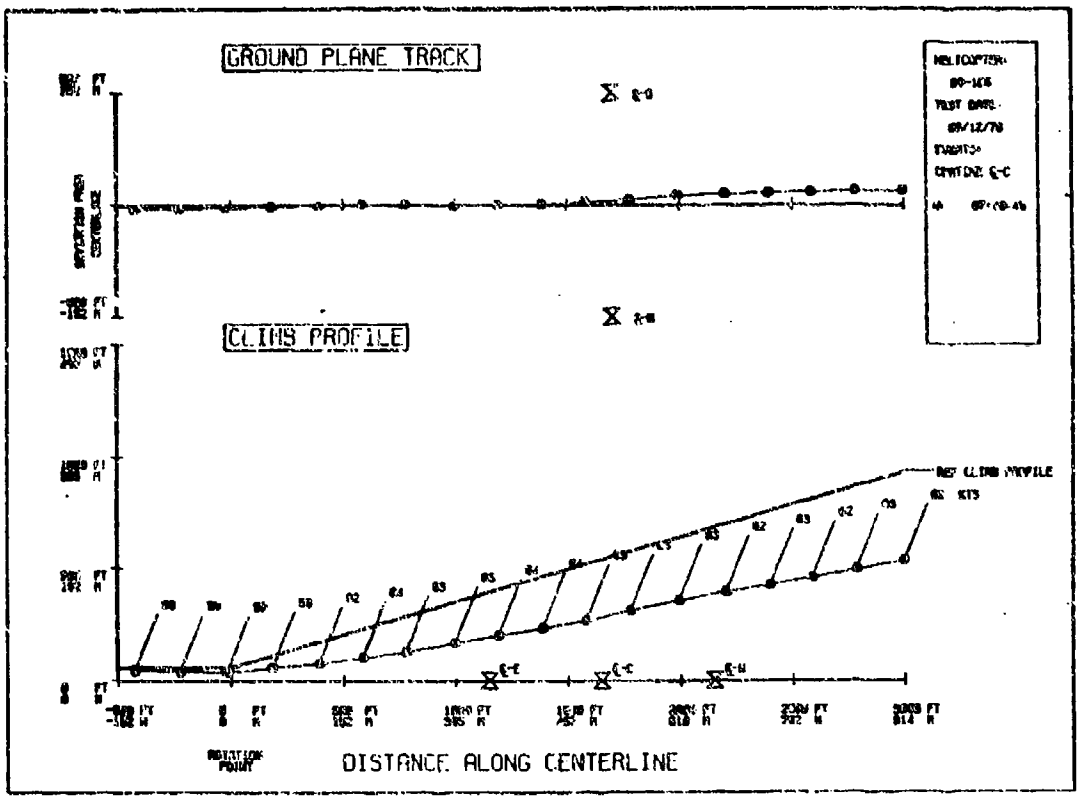


Figure E.2.2

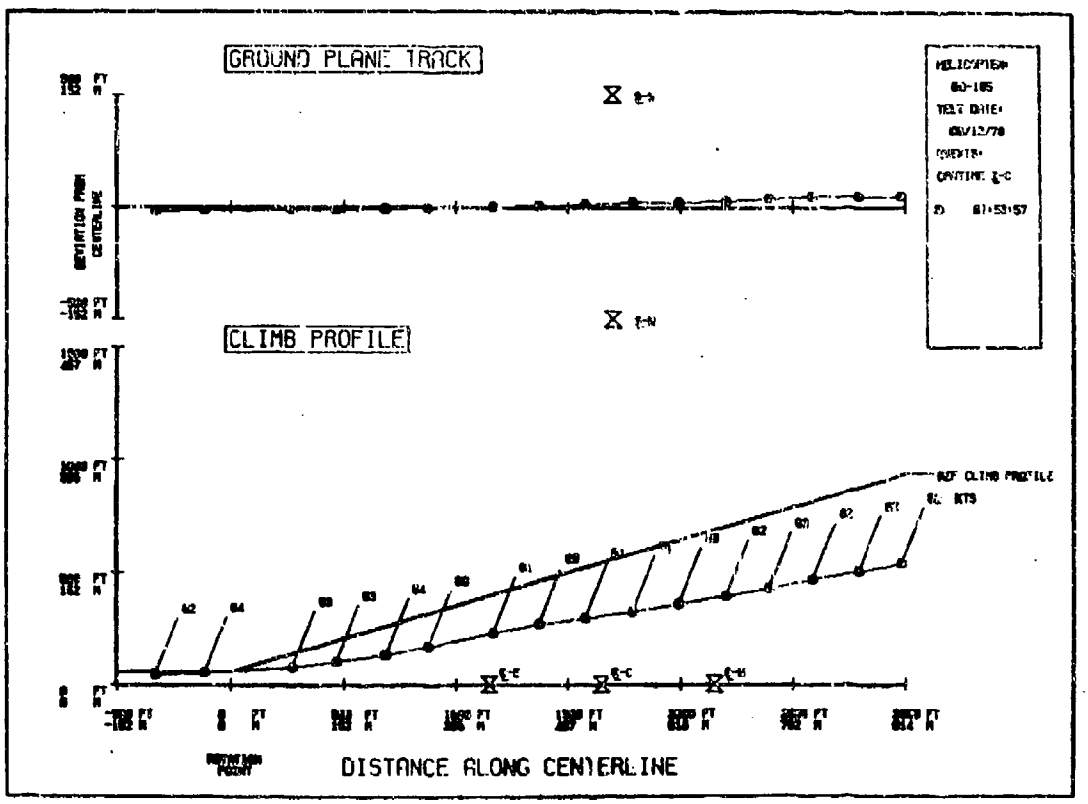


Figure E.2.3

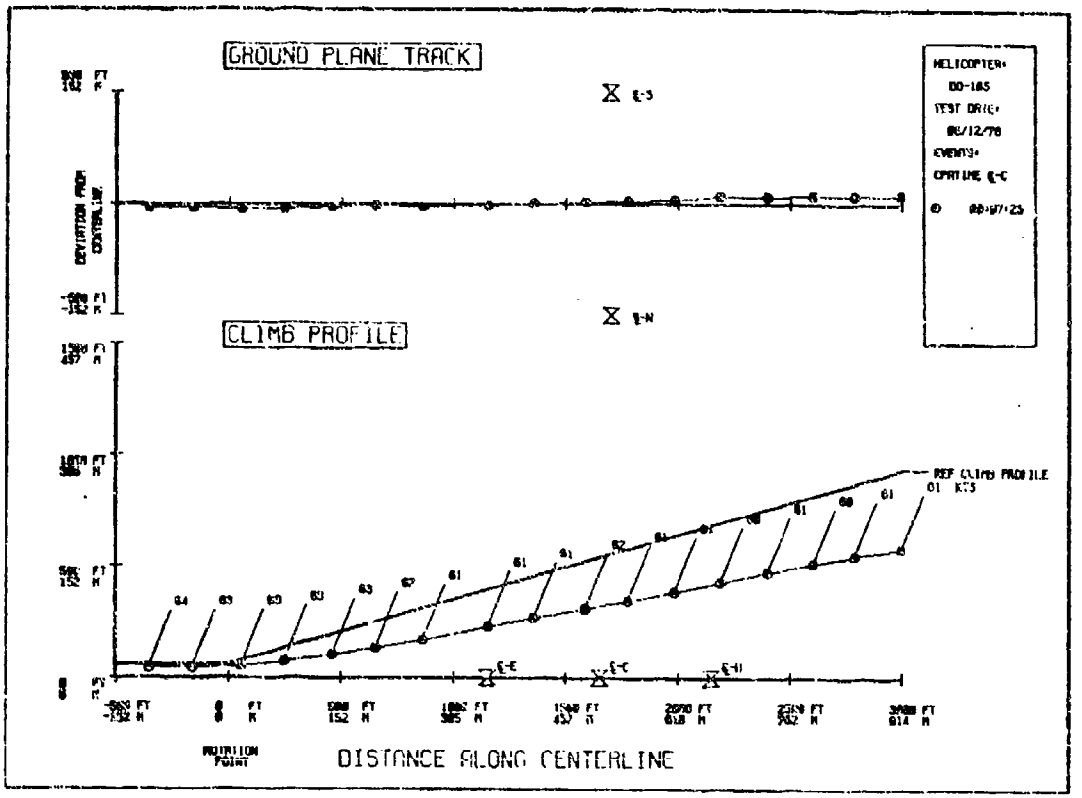


Figure E.2.4

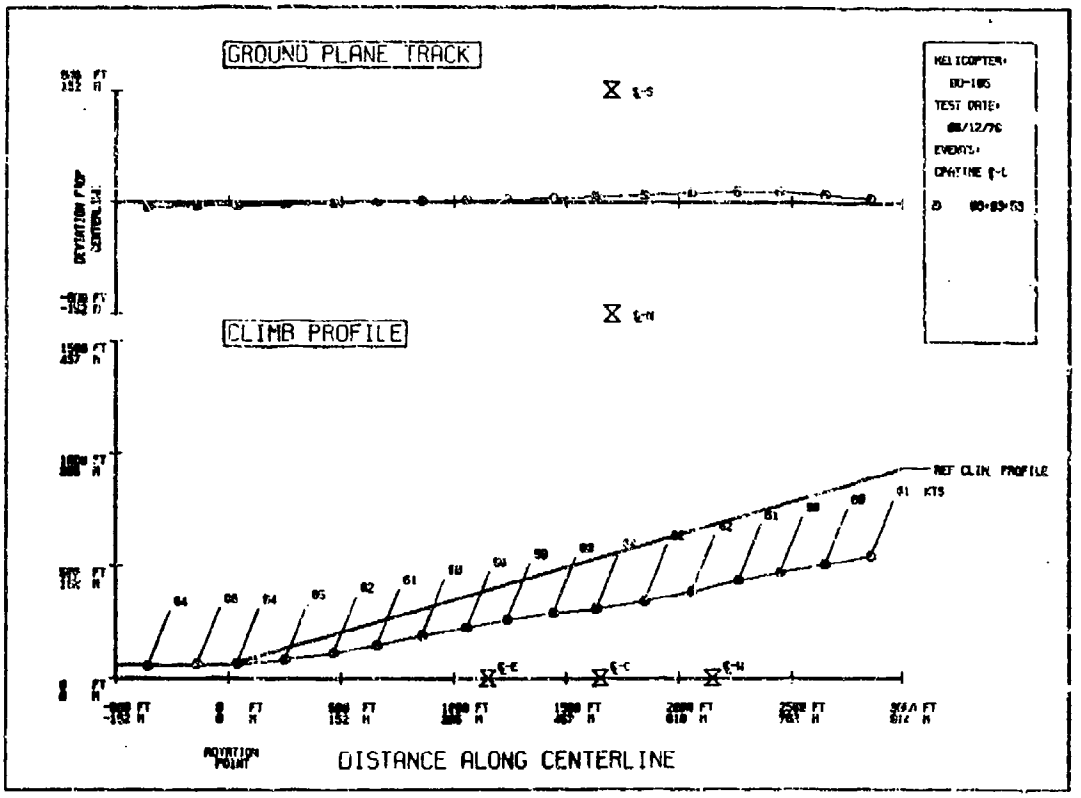


Figure E.2.5

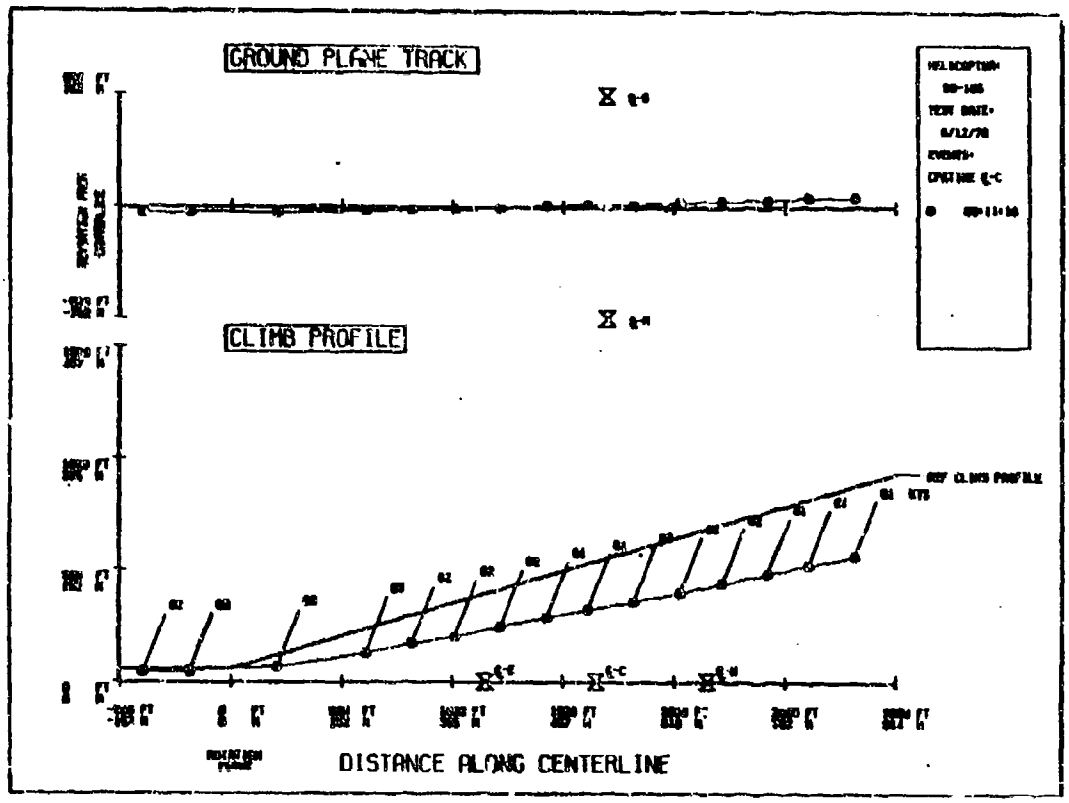


Figure E.2.6

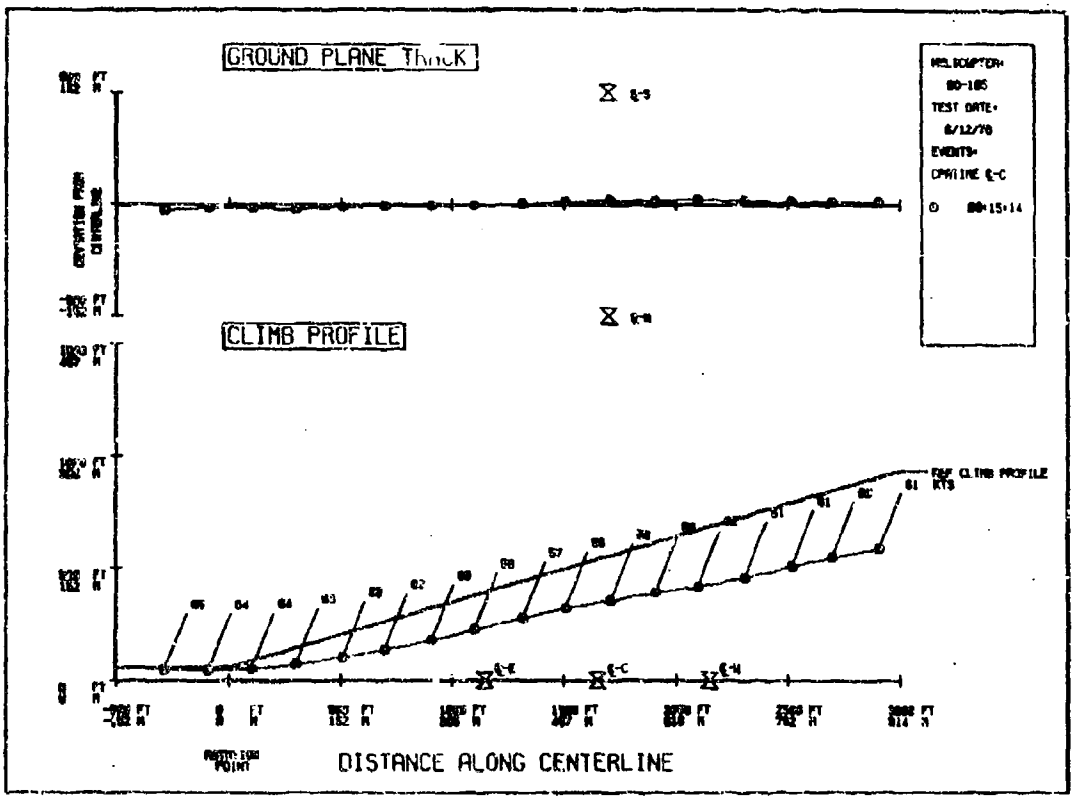


Figure E.3.1

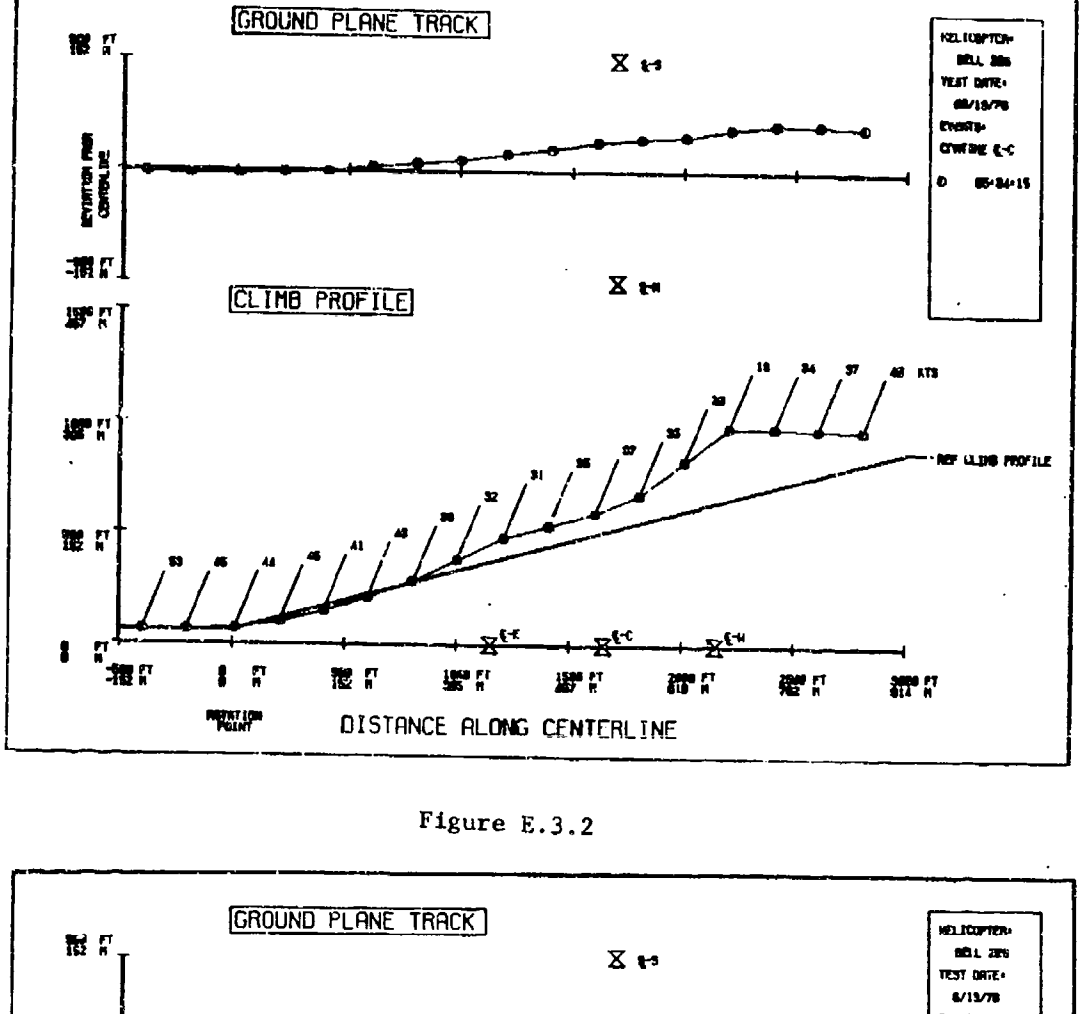


Figure E.3.2

Figure E.3.3

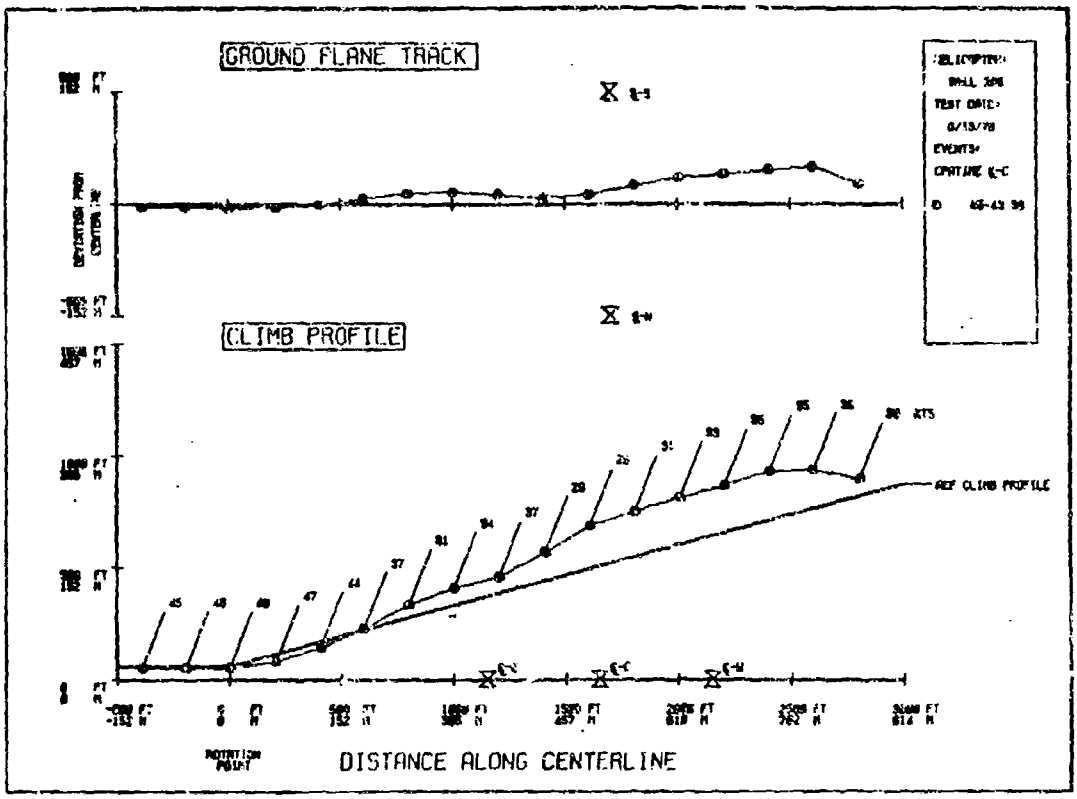


Figure E.3.4

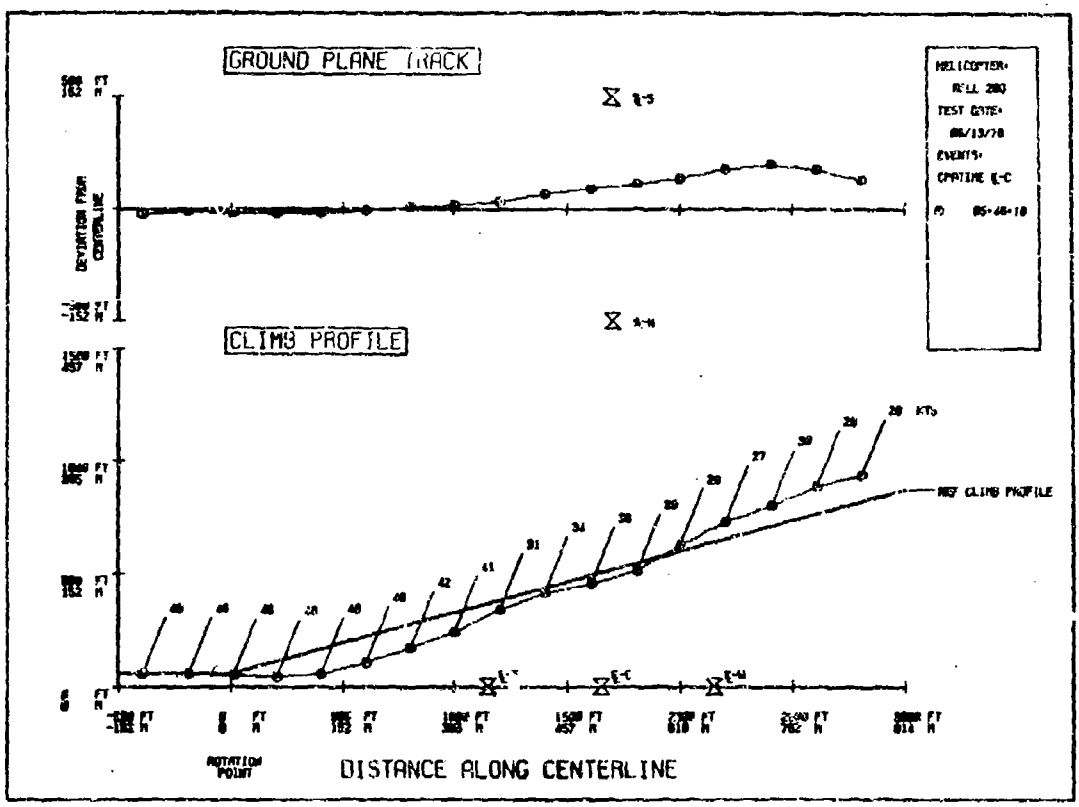


Figure E.3.5

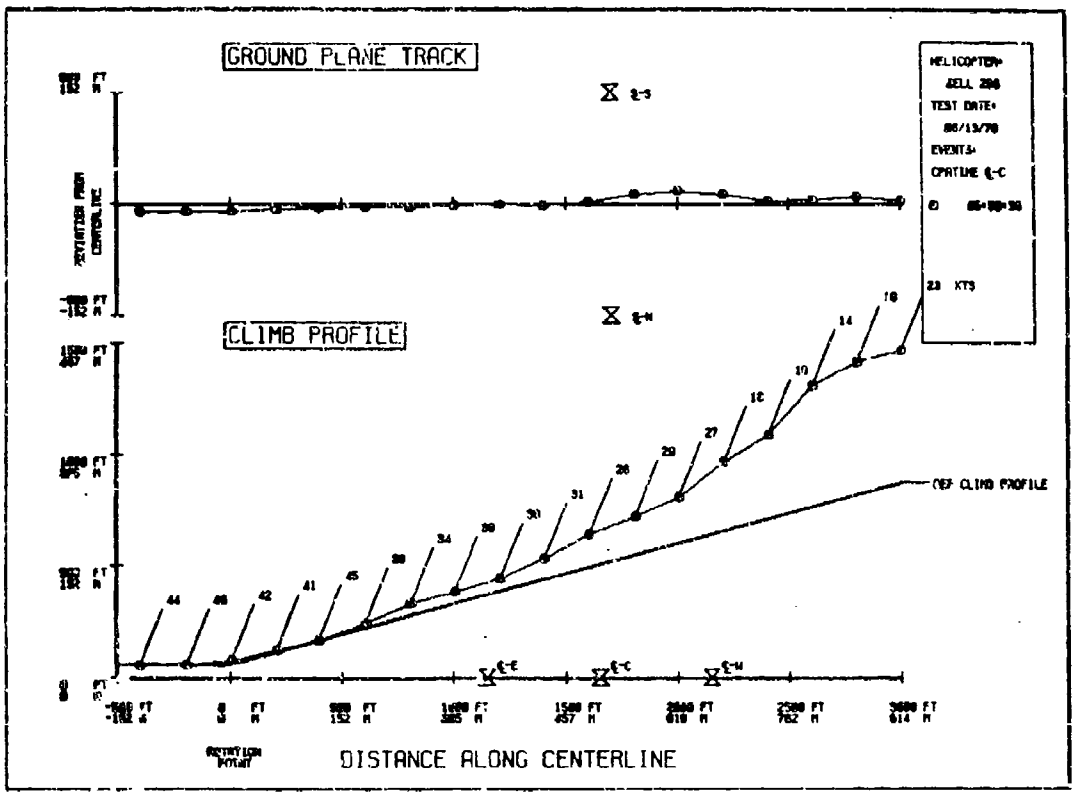


Figure E.3.6

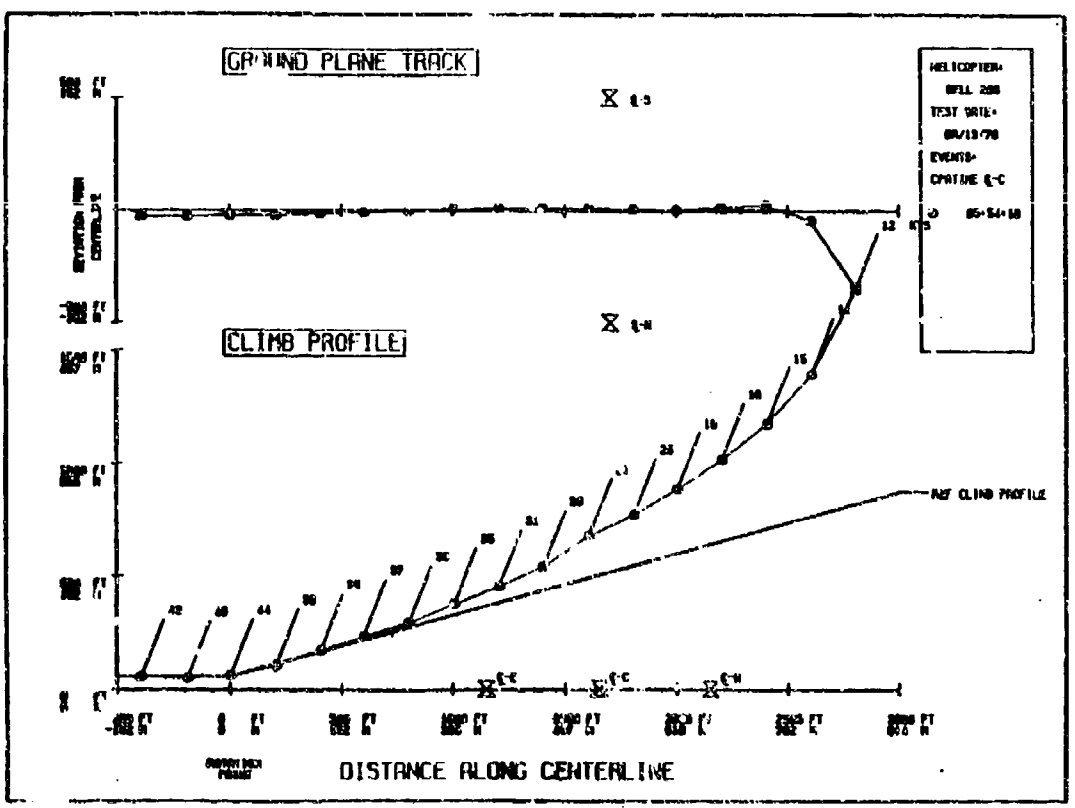


Figure E.4.1

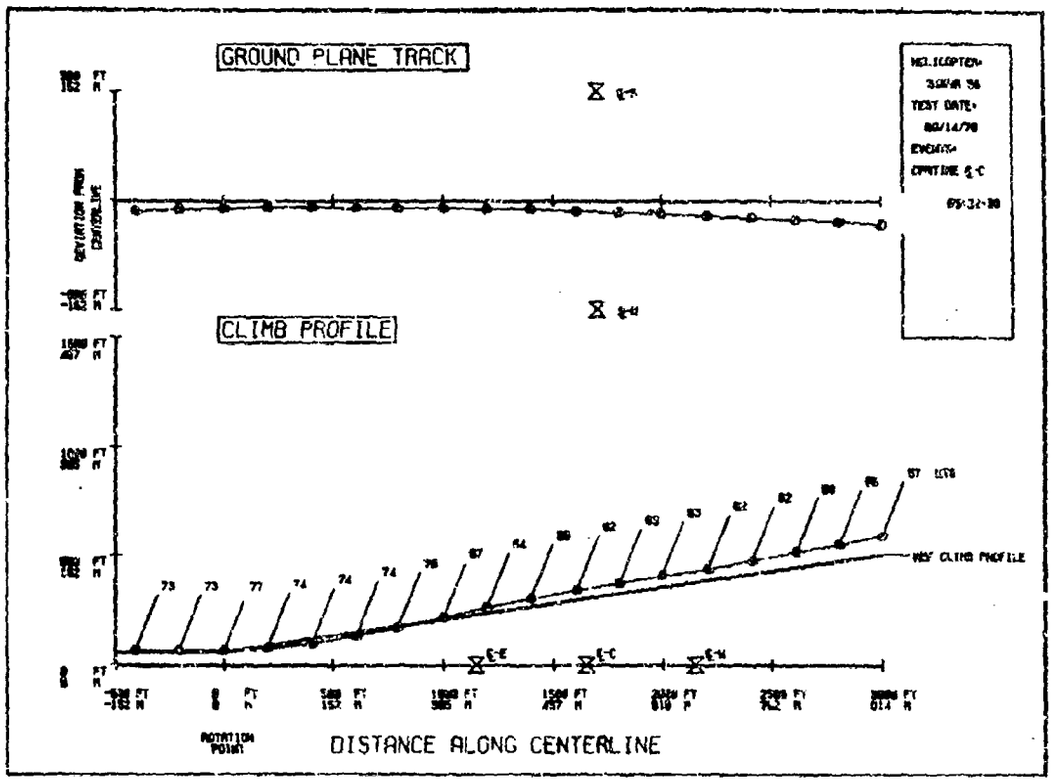


Figure E.4.2

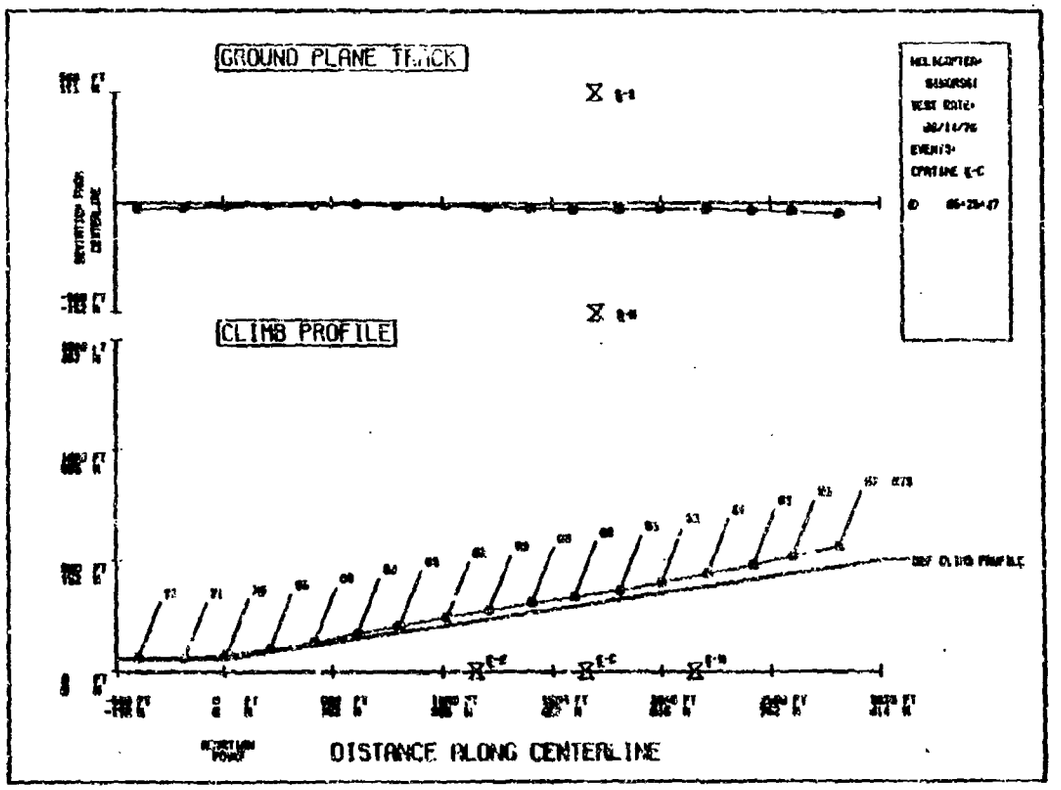


Figure E.4.3

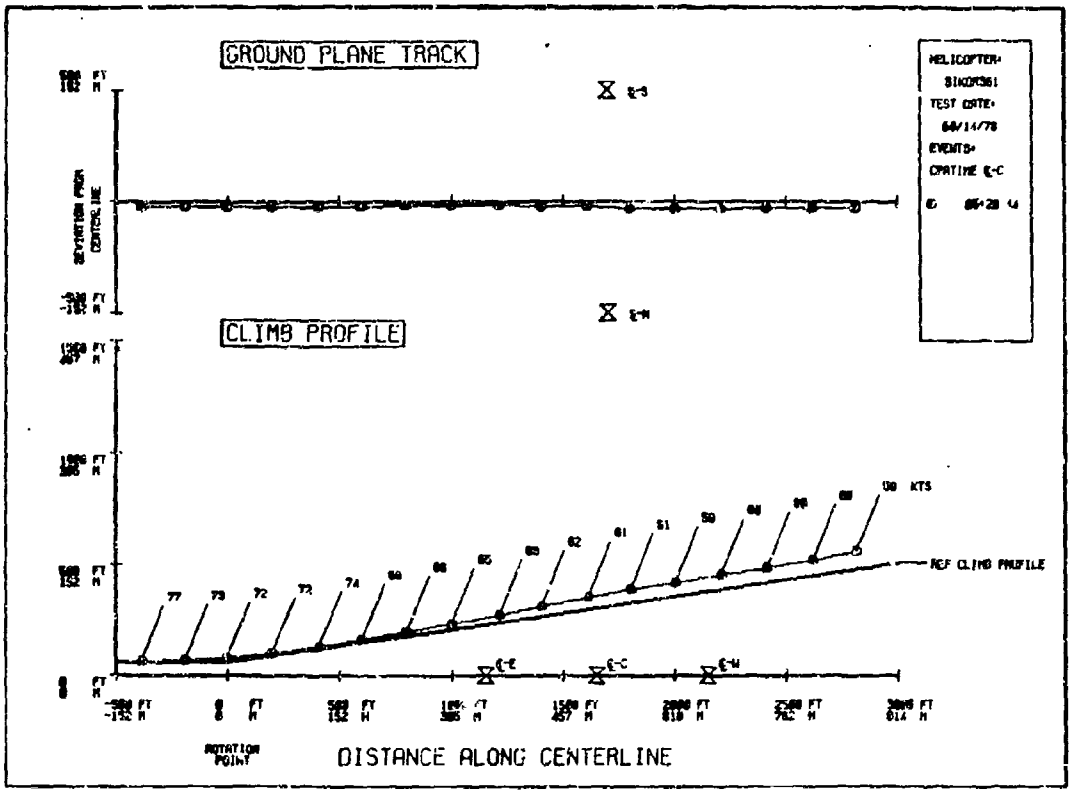


Figure E.4.4

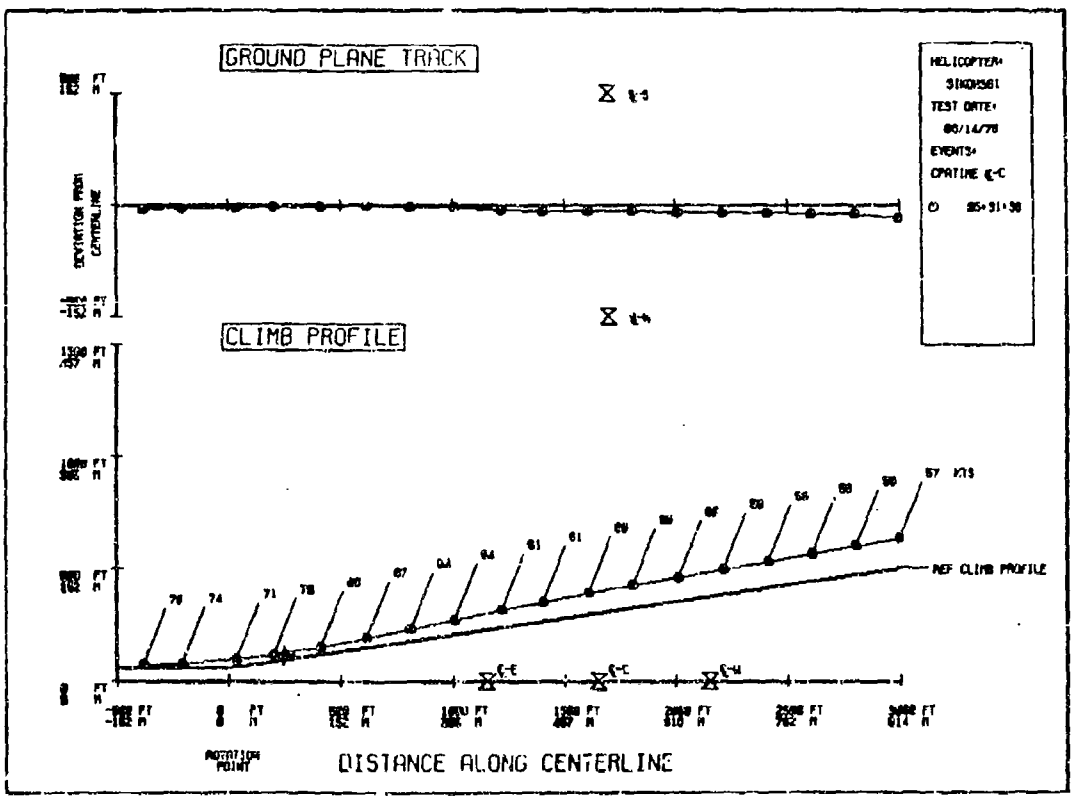


Figure E.4.5

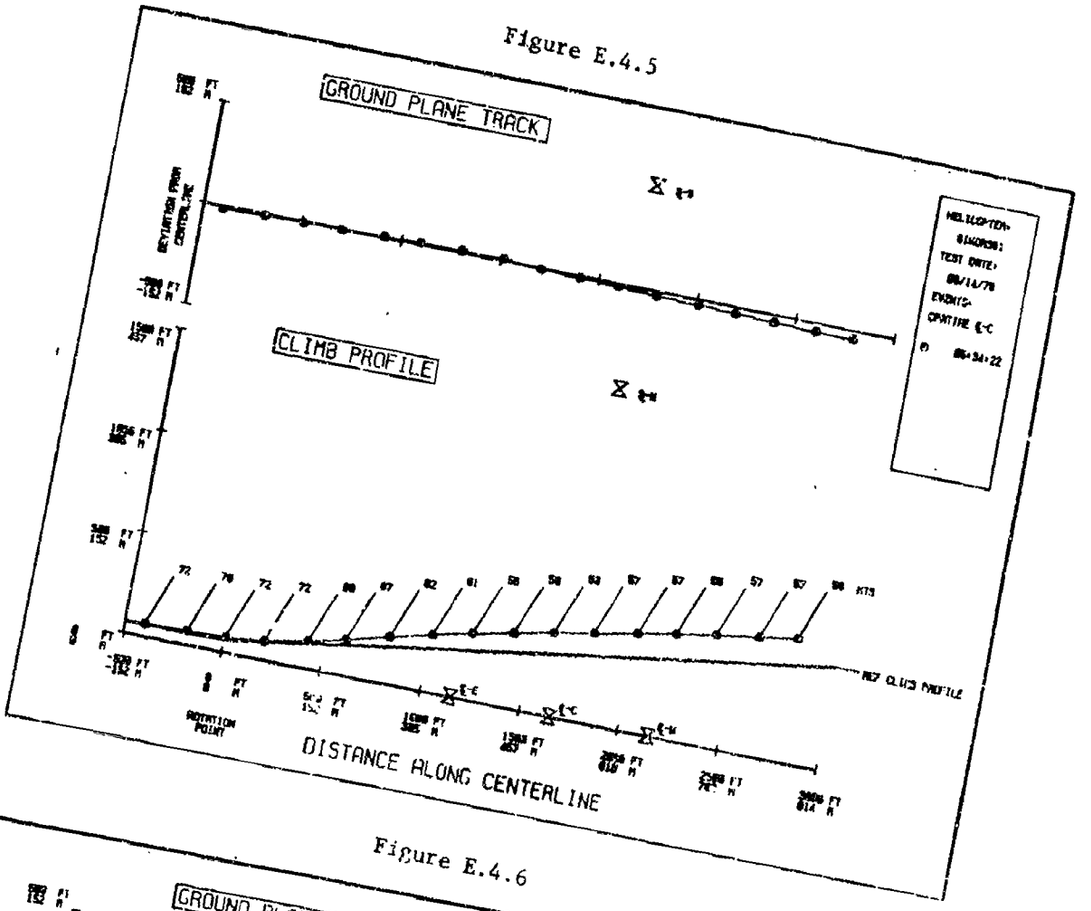


Figure E.4.6

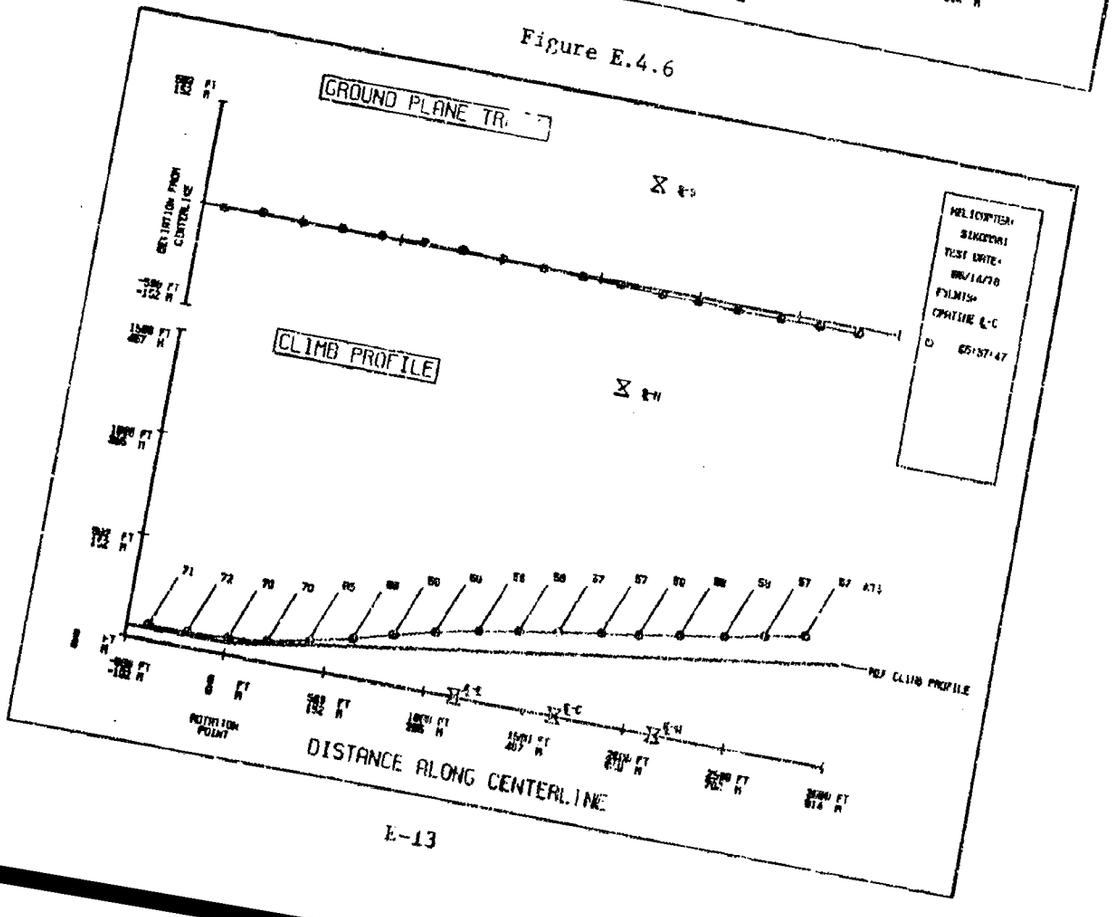


Figure E.5.1

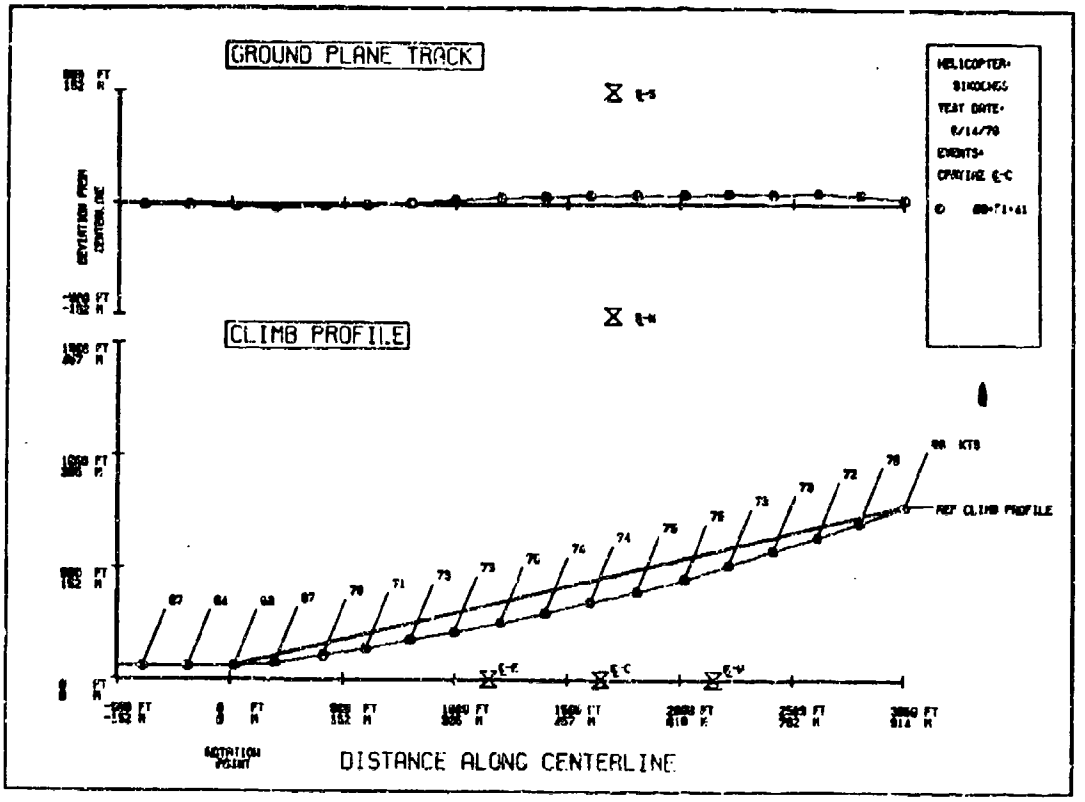


Figure E.5.2

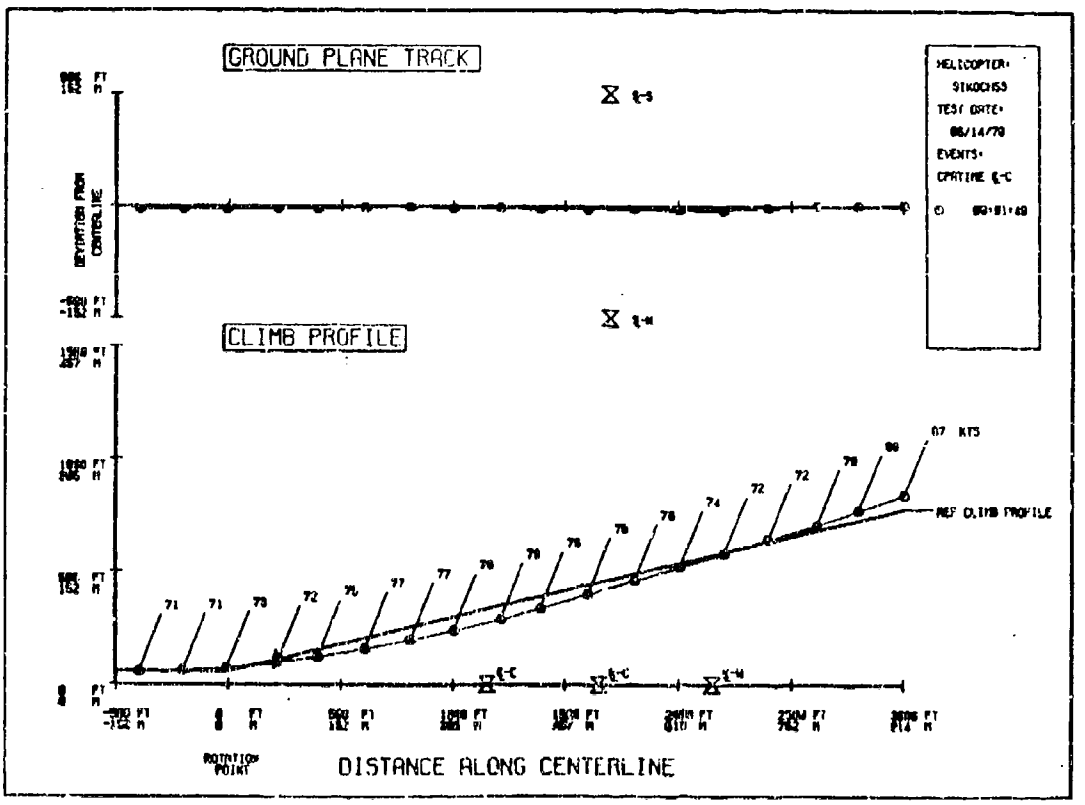


Figure E.5.3

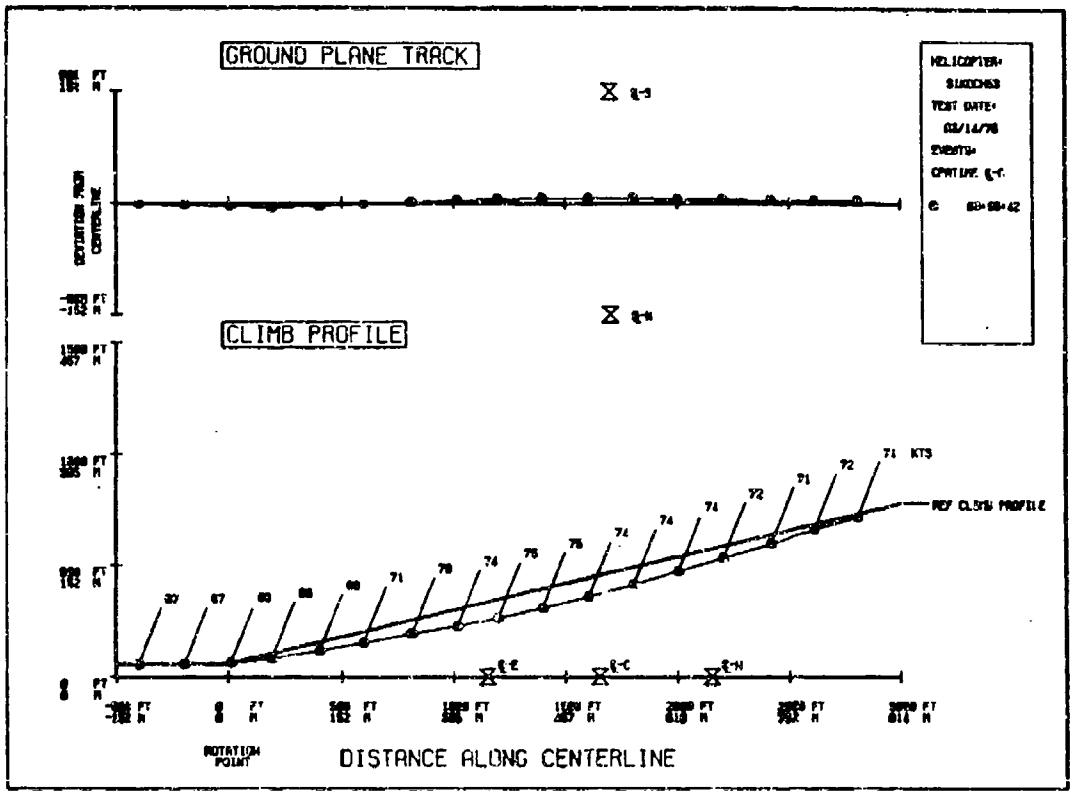


Figure E.5.4

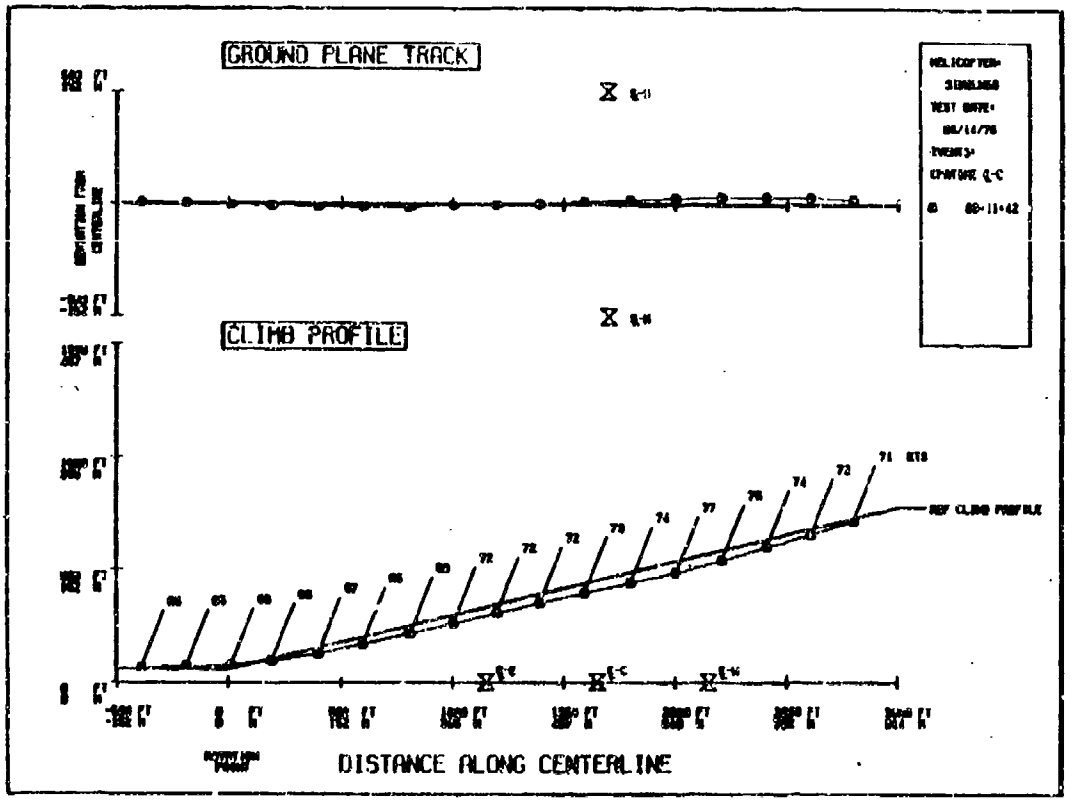


Figure E.5.5

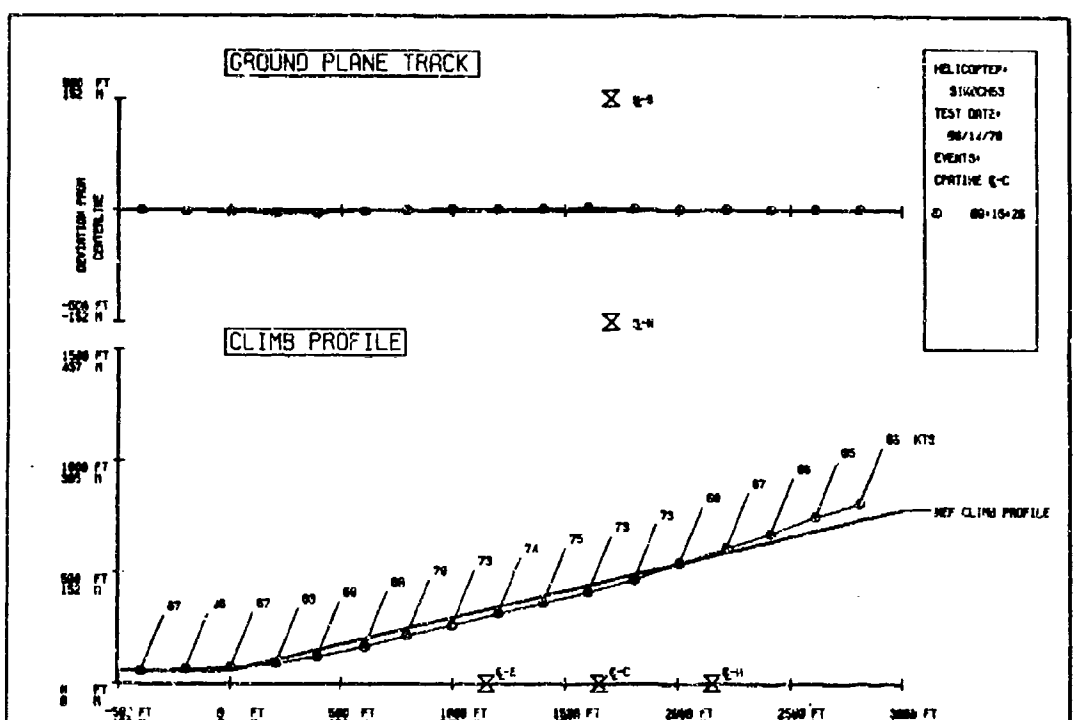


Figure E.5.6

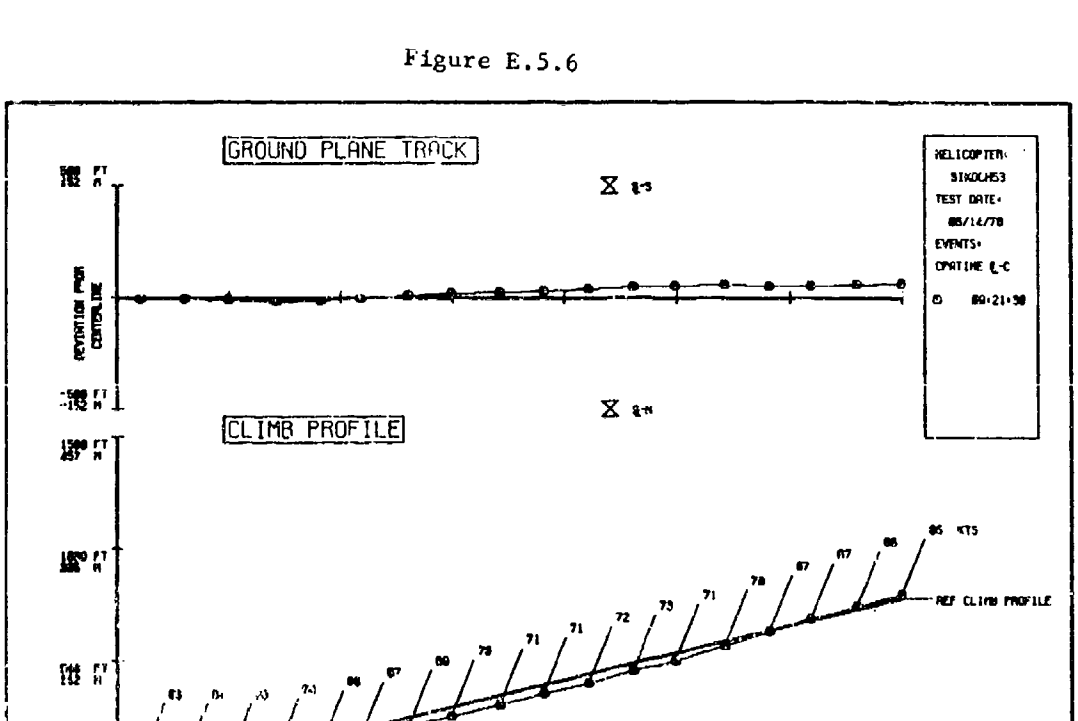


Figure E.6.1

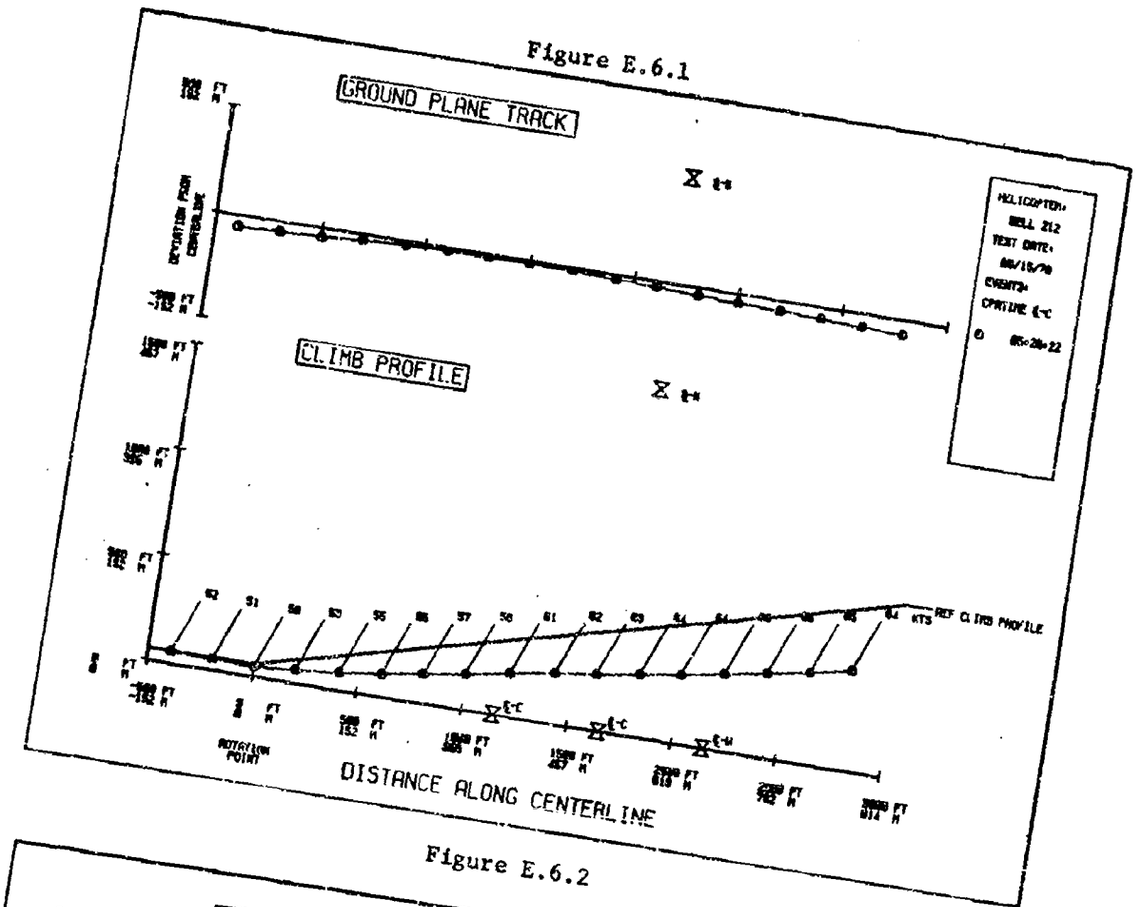


Figure E.6.2

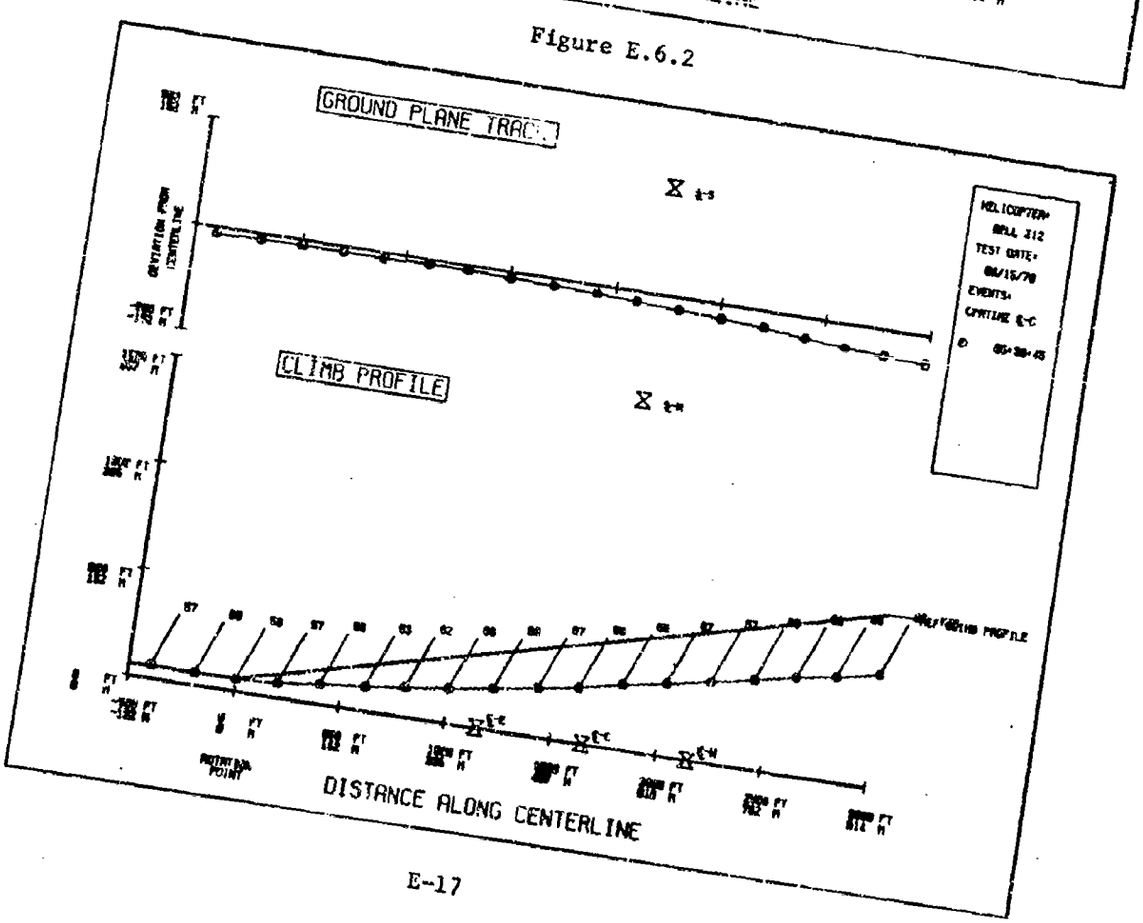


Figure E.6.3

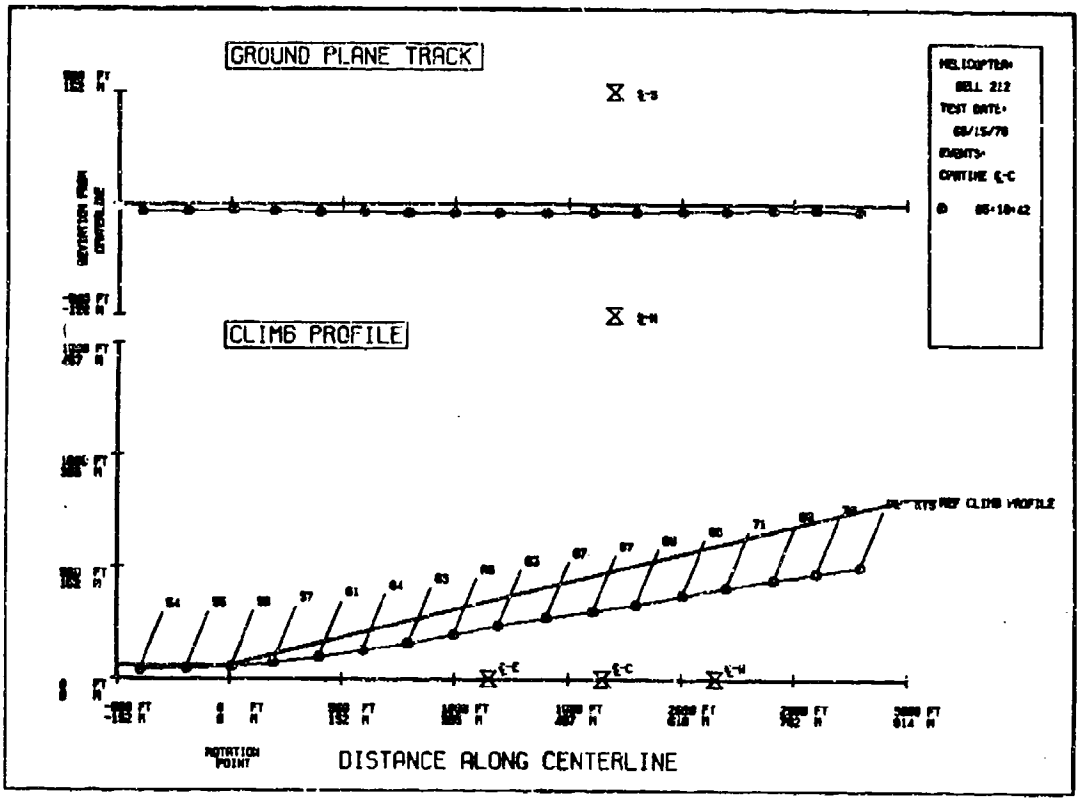


Figure E.6.4

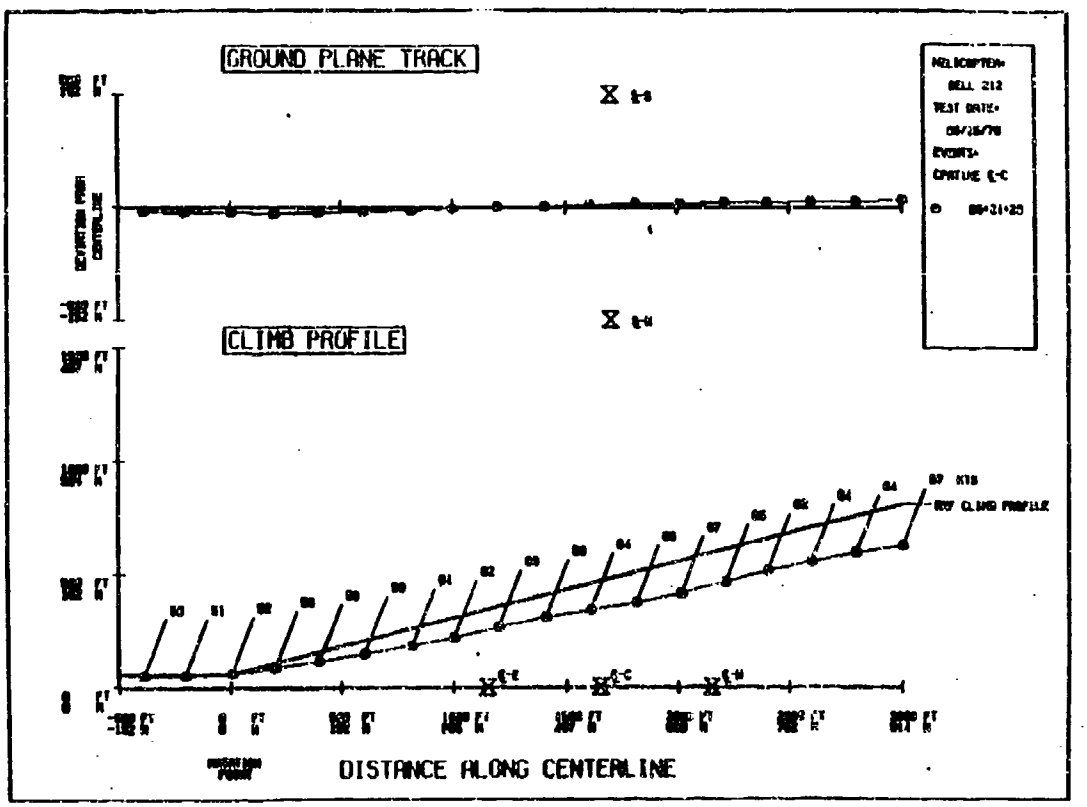


Figure E.6.5

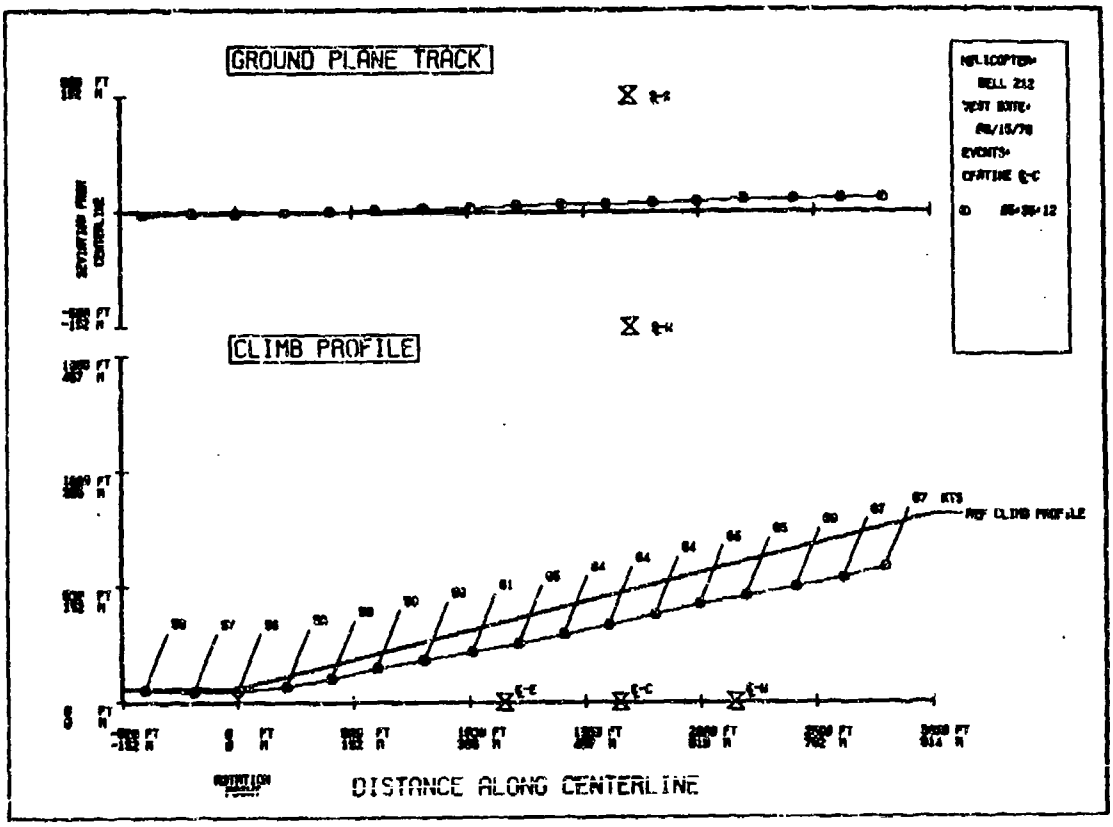


Figure E.6.6

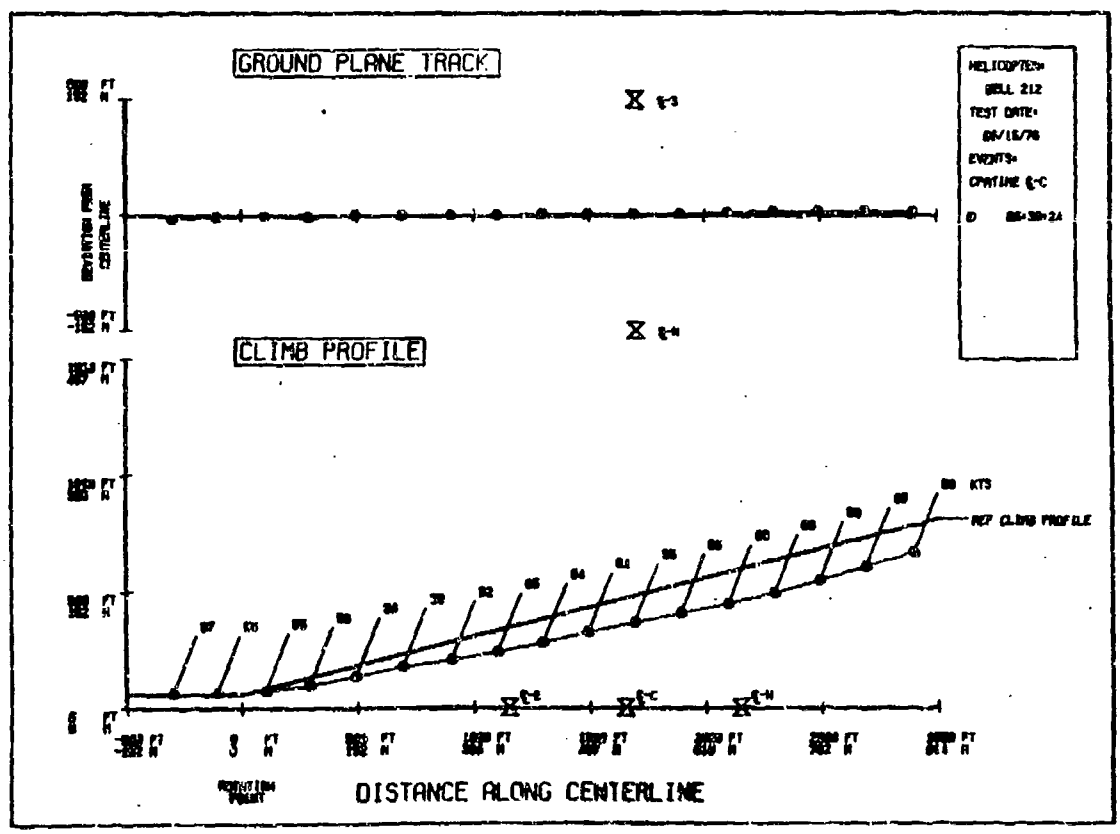


Figure E.7.1

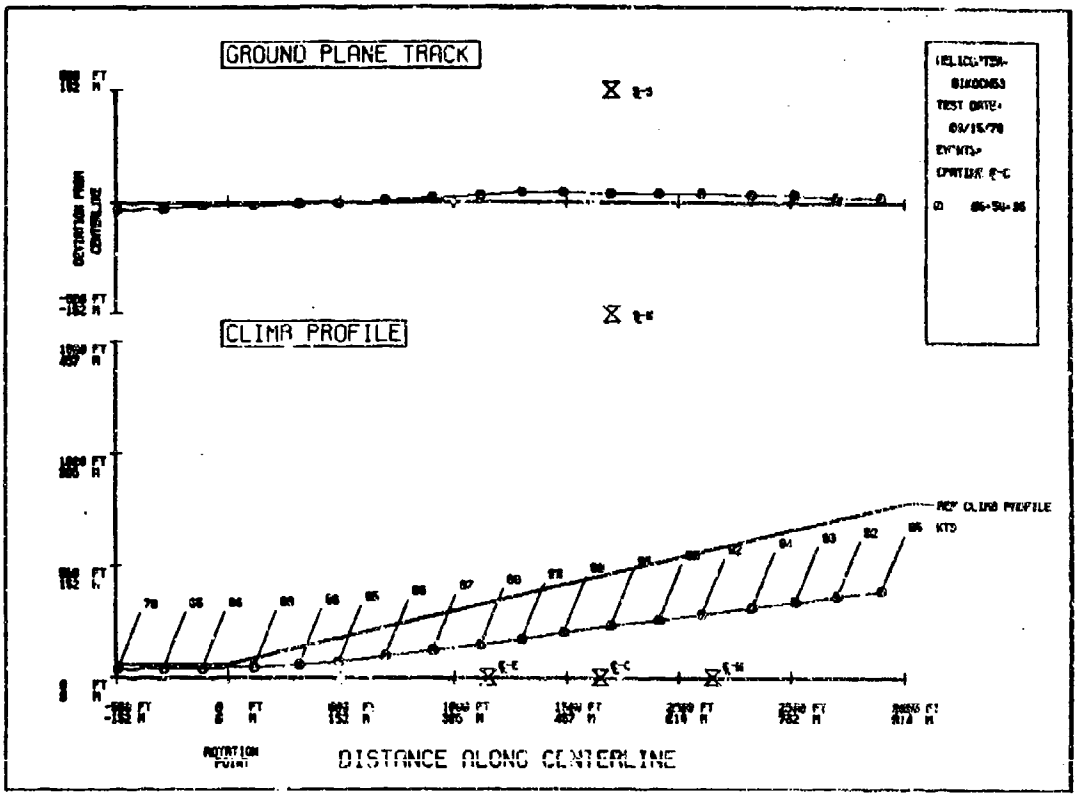


Figure E.7.2

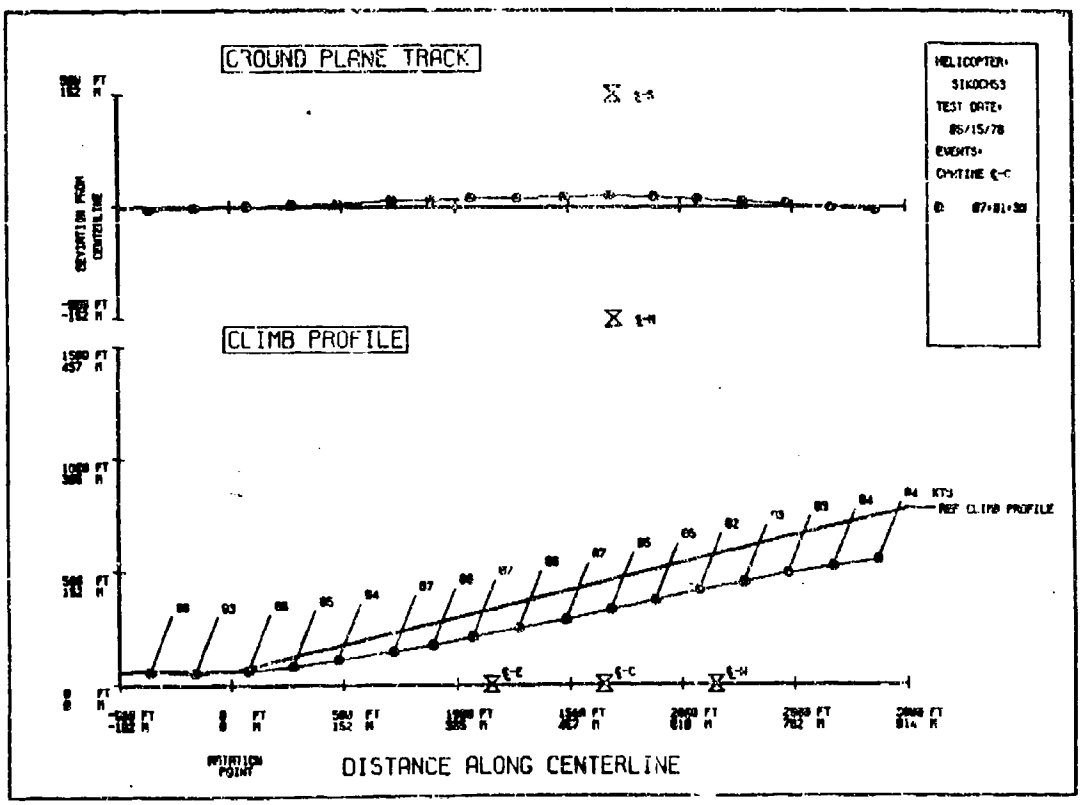


Figure E.7.3

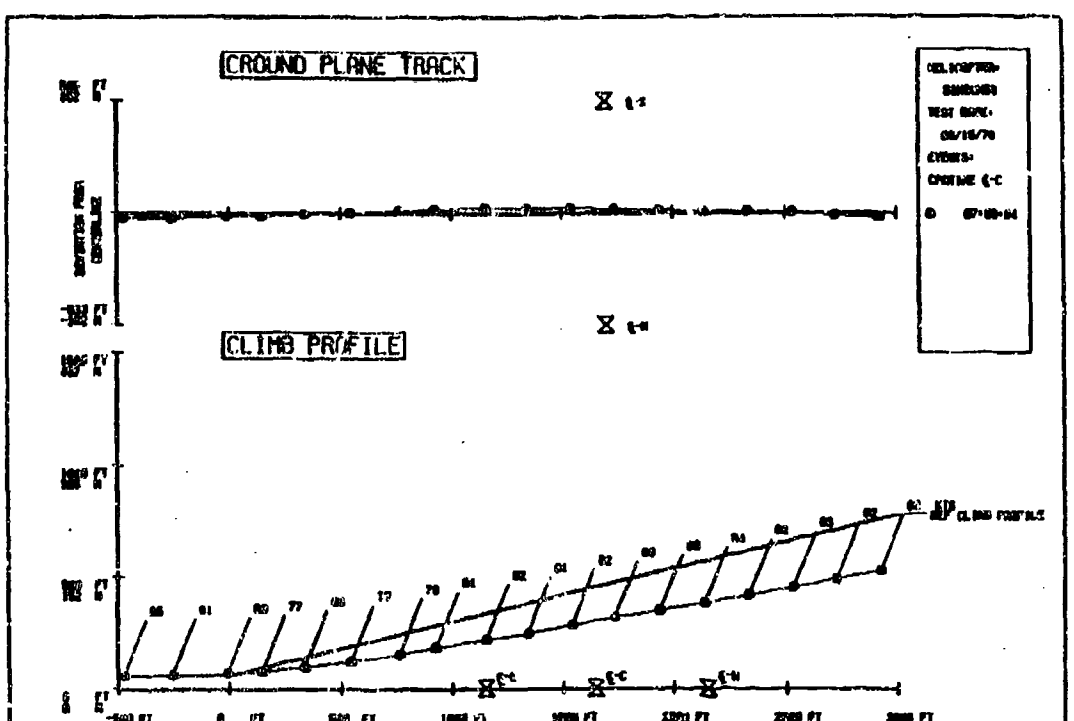


Figure E.7.4

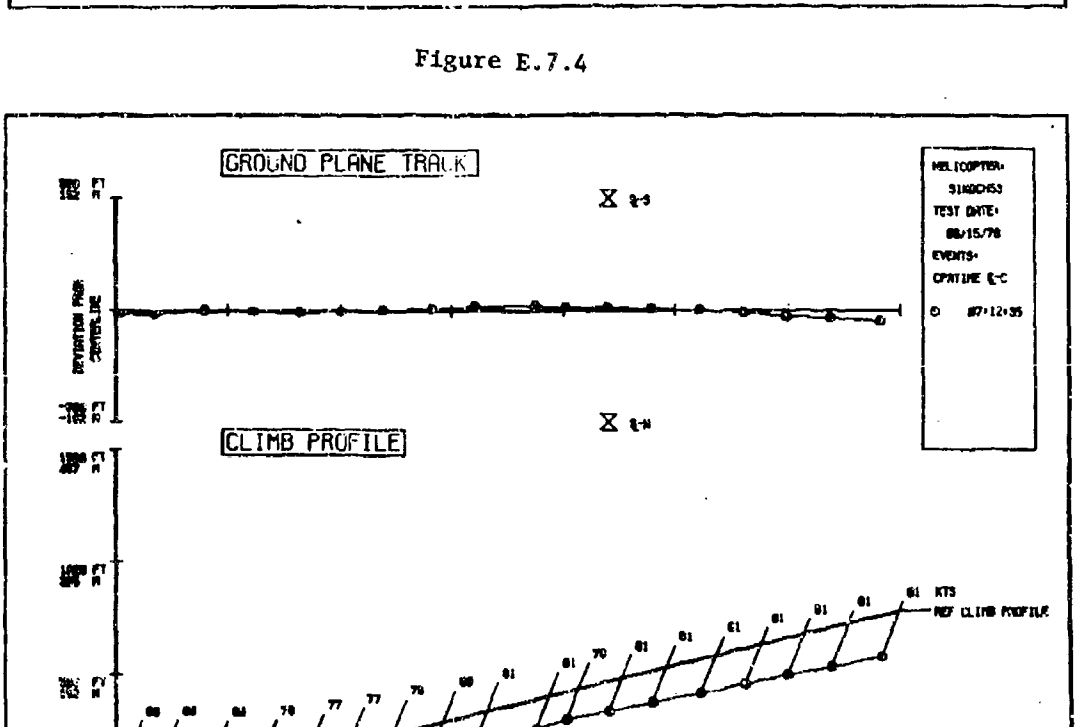


Figure E.7.6

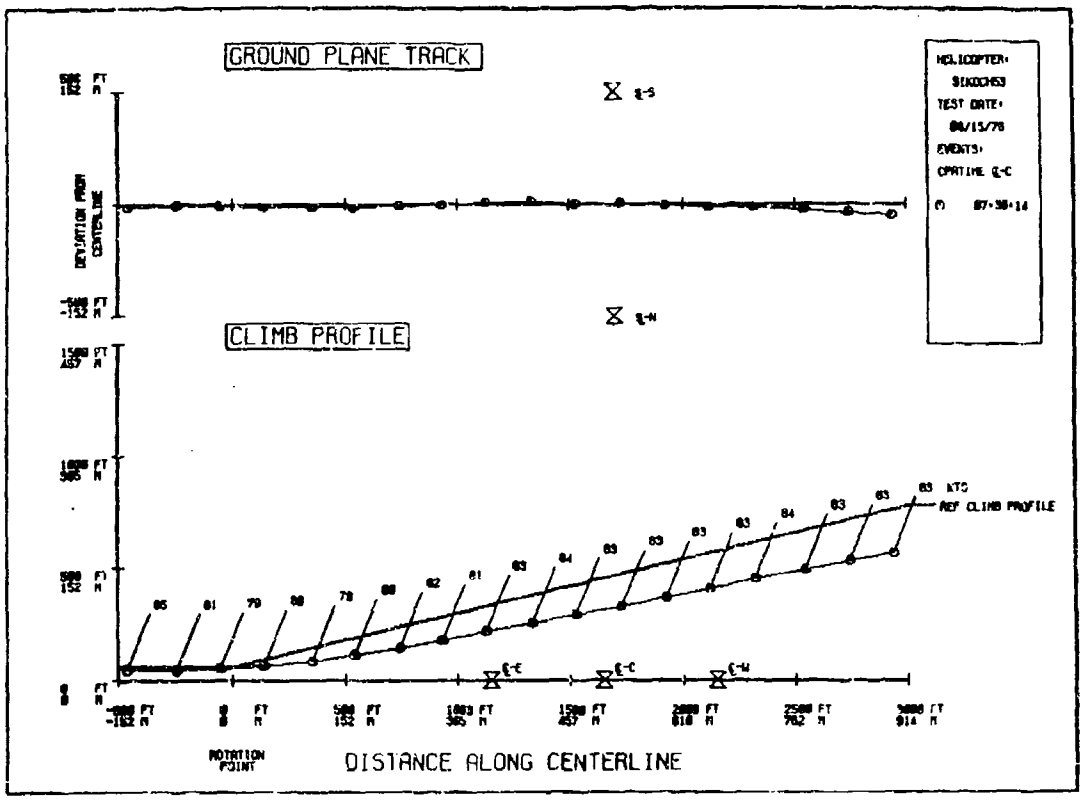


Figure E.7.5

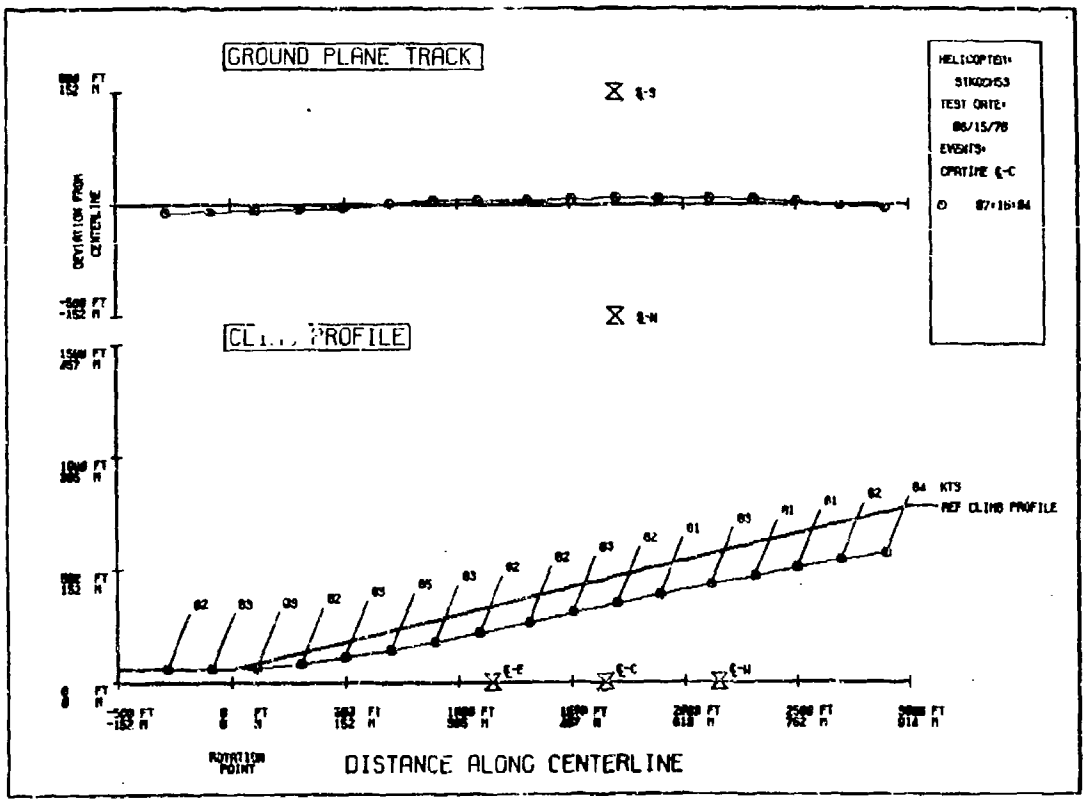


Figure E.8.1

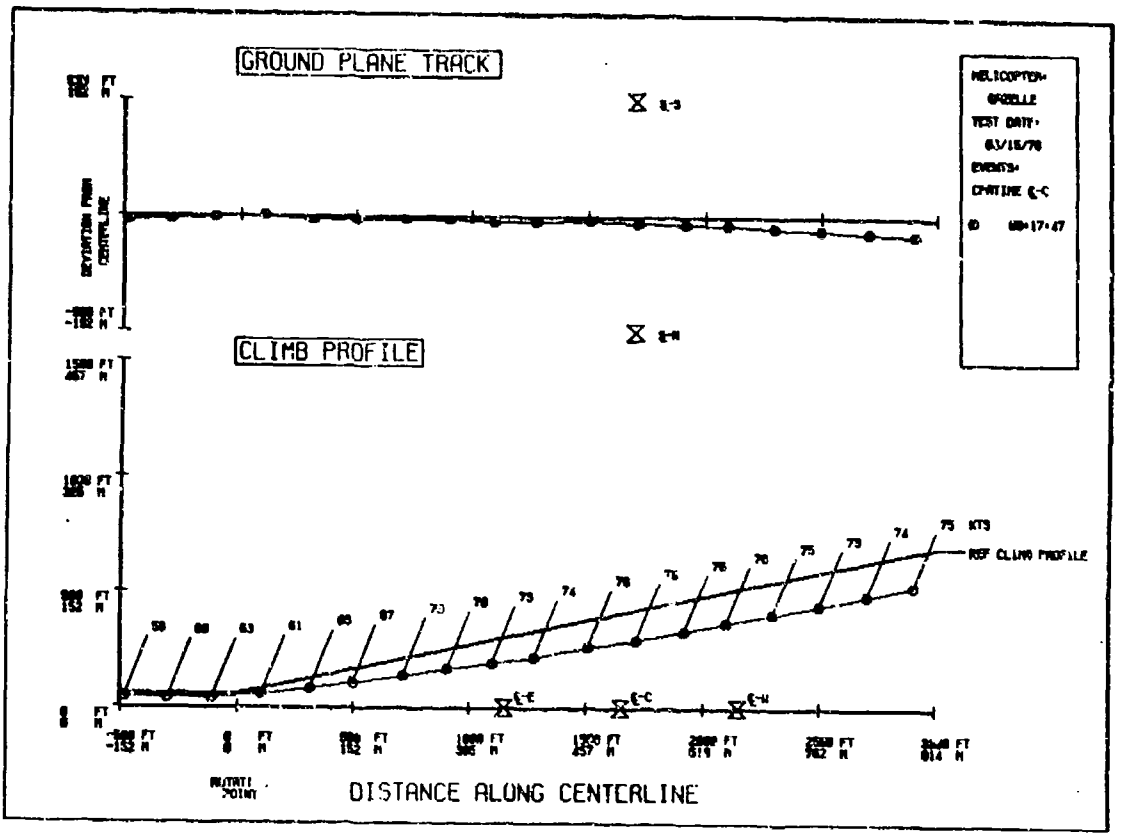


Figure E.8.2

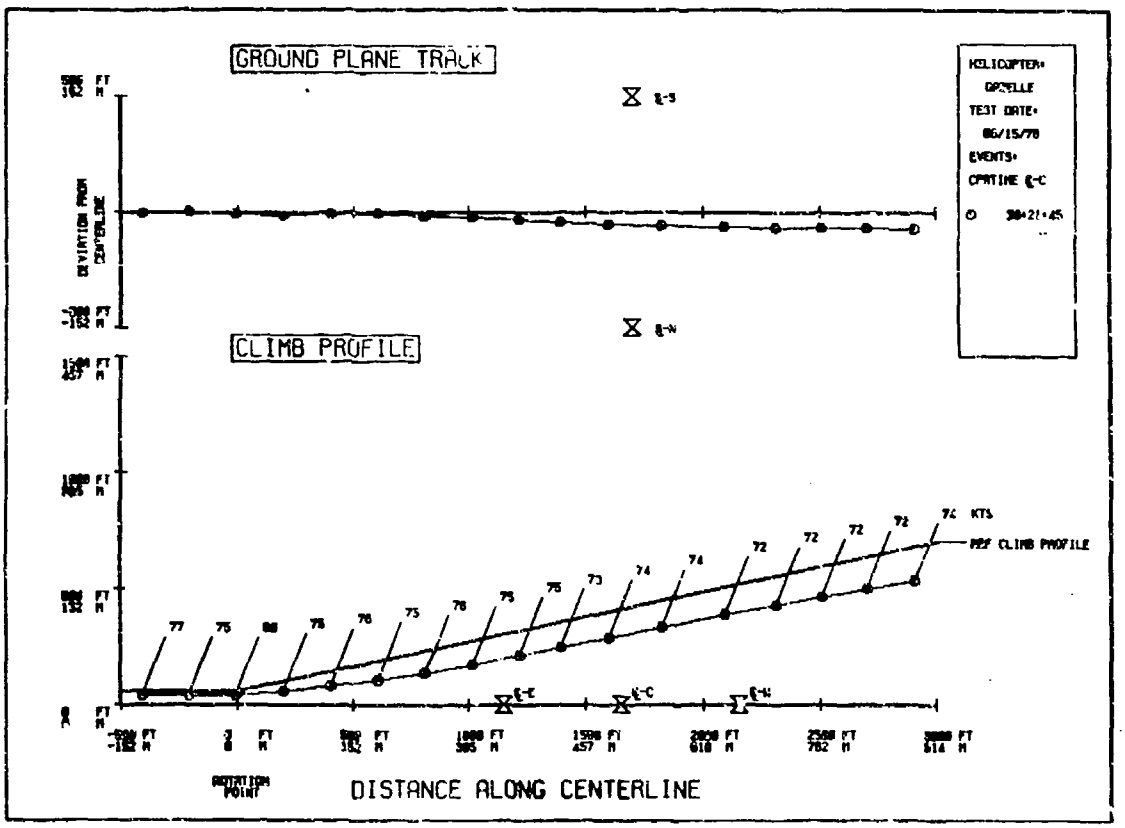


Figure E.8.3

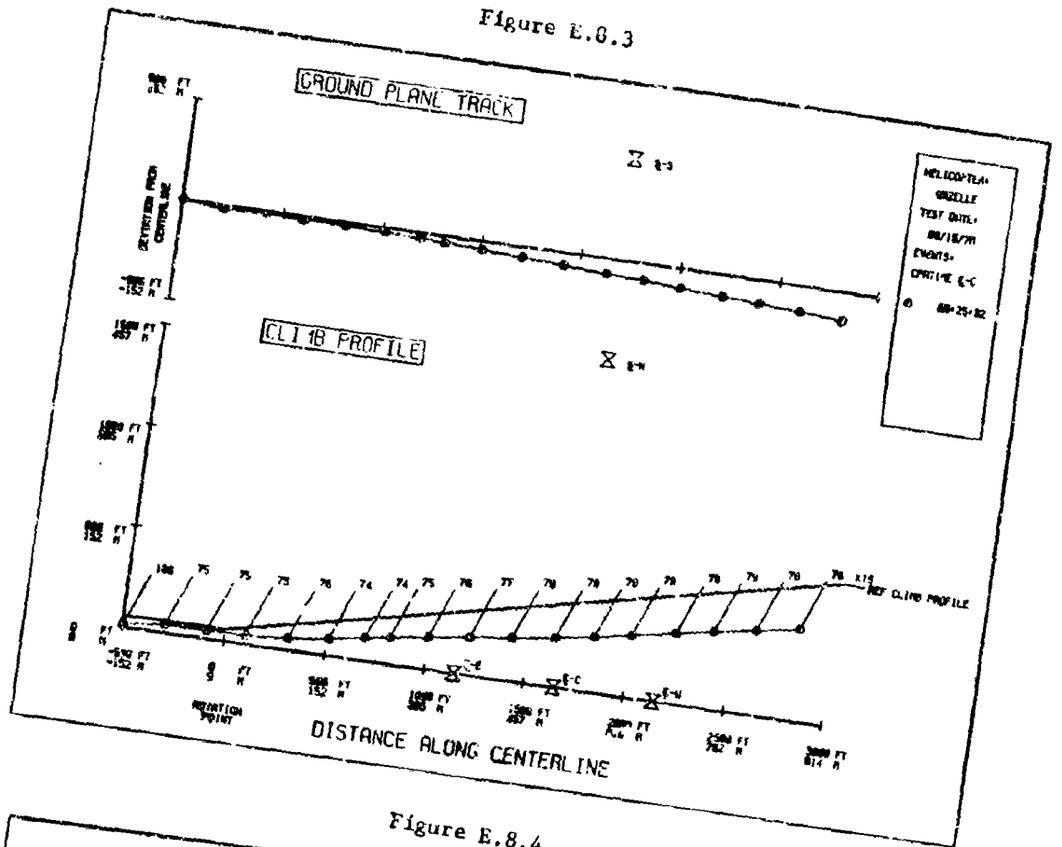


Figure E.8.4

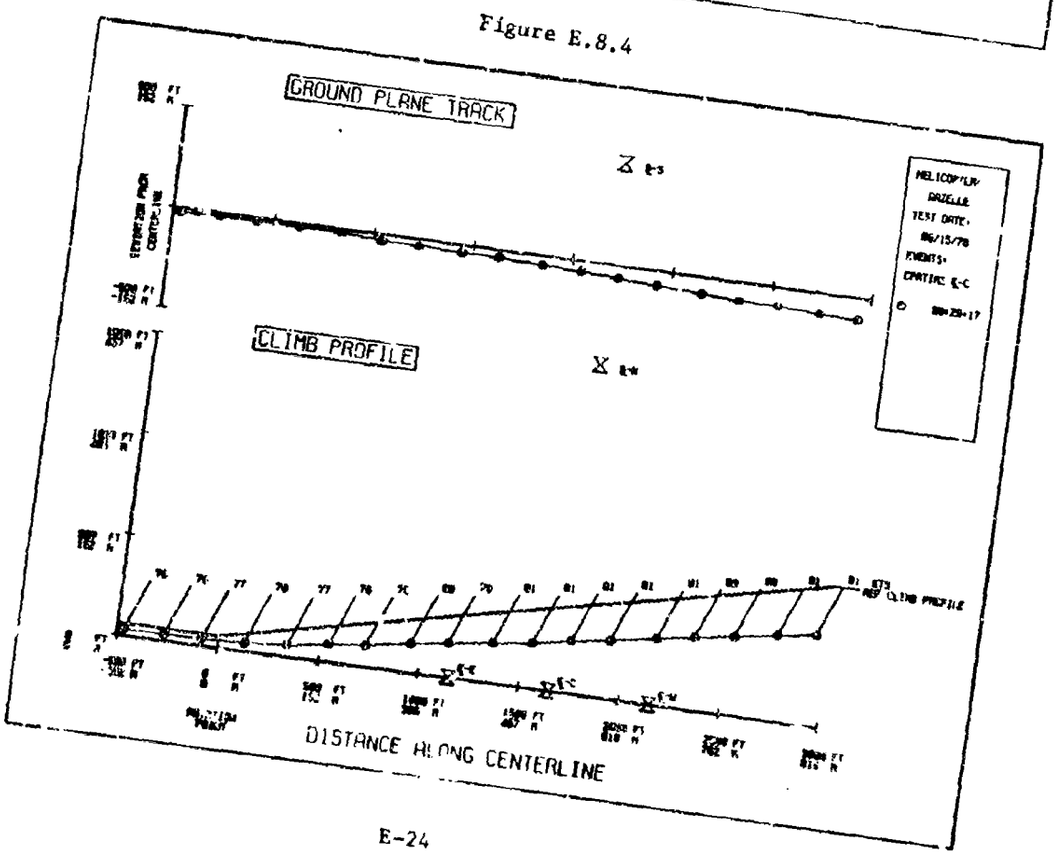


Figure E.8.5

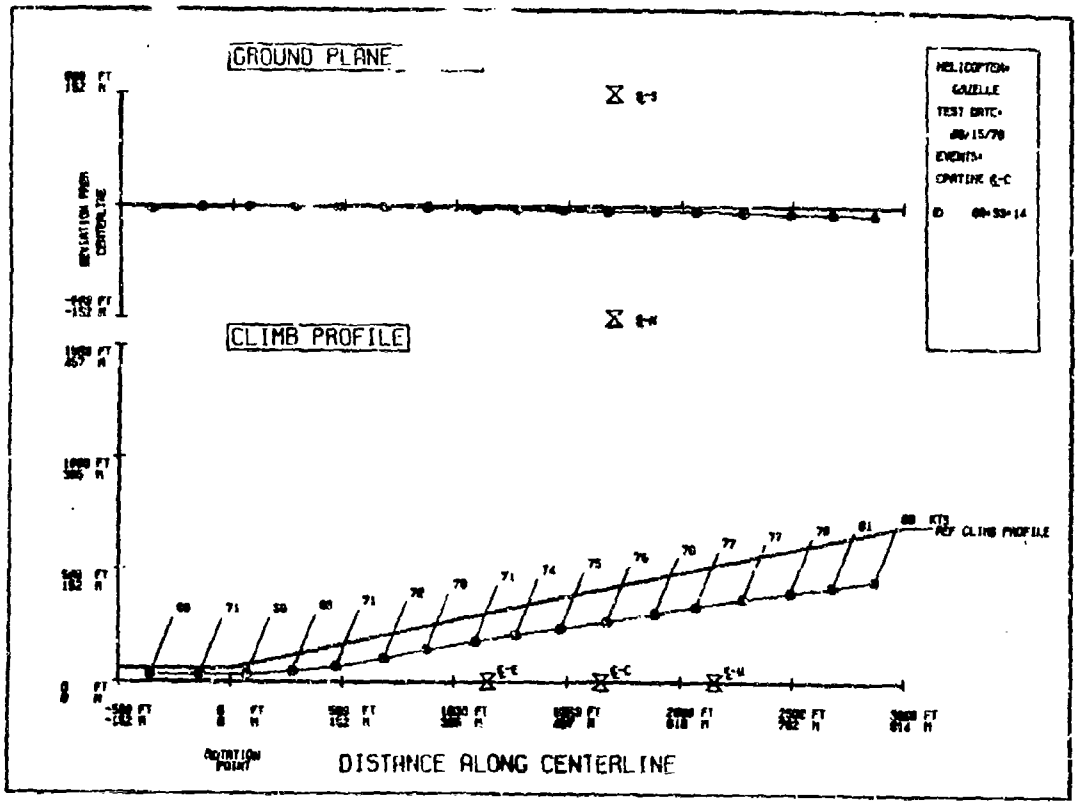


Figure E.8.6

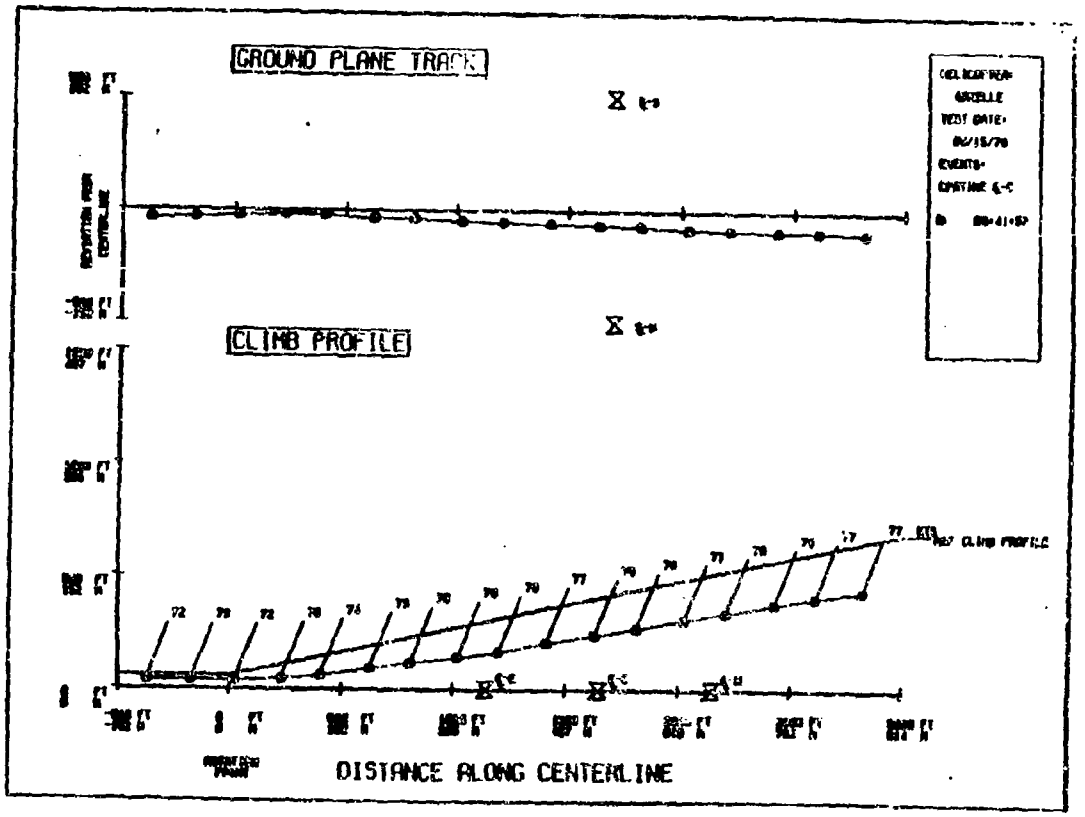


Figure E.9.1

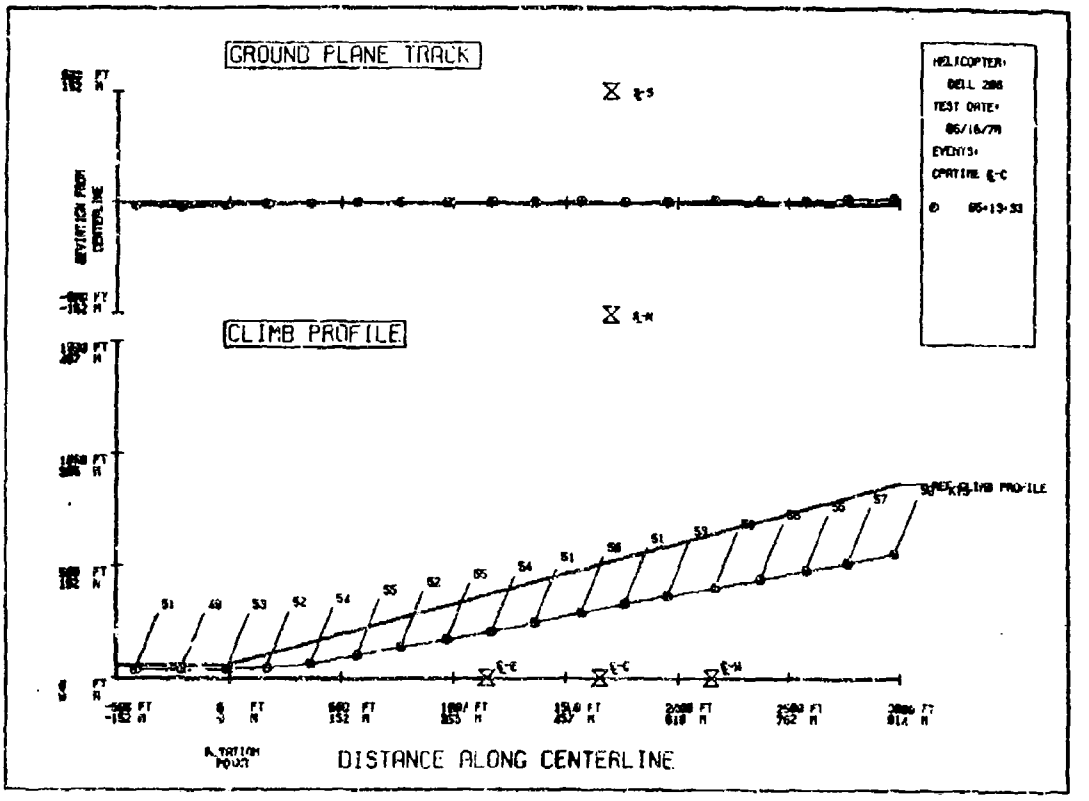


Figure E.9.2

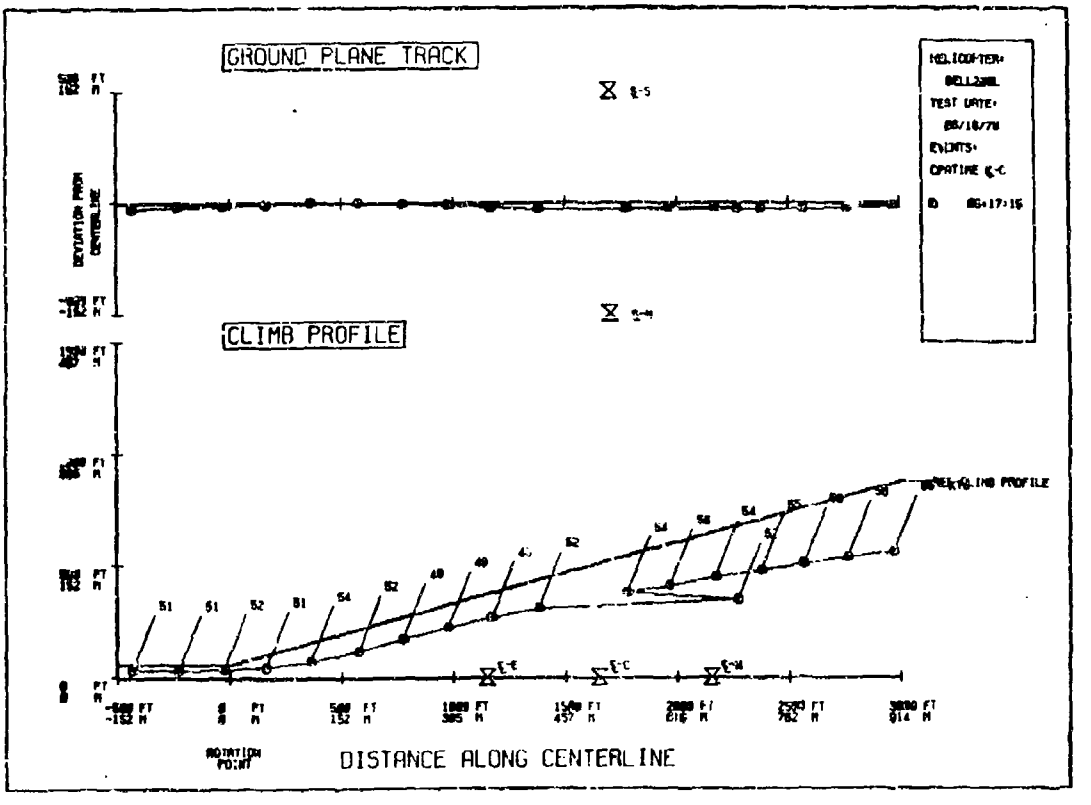


Figure E.9.3

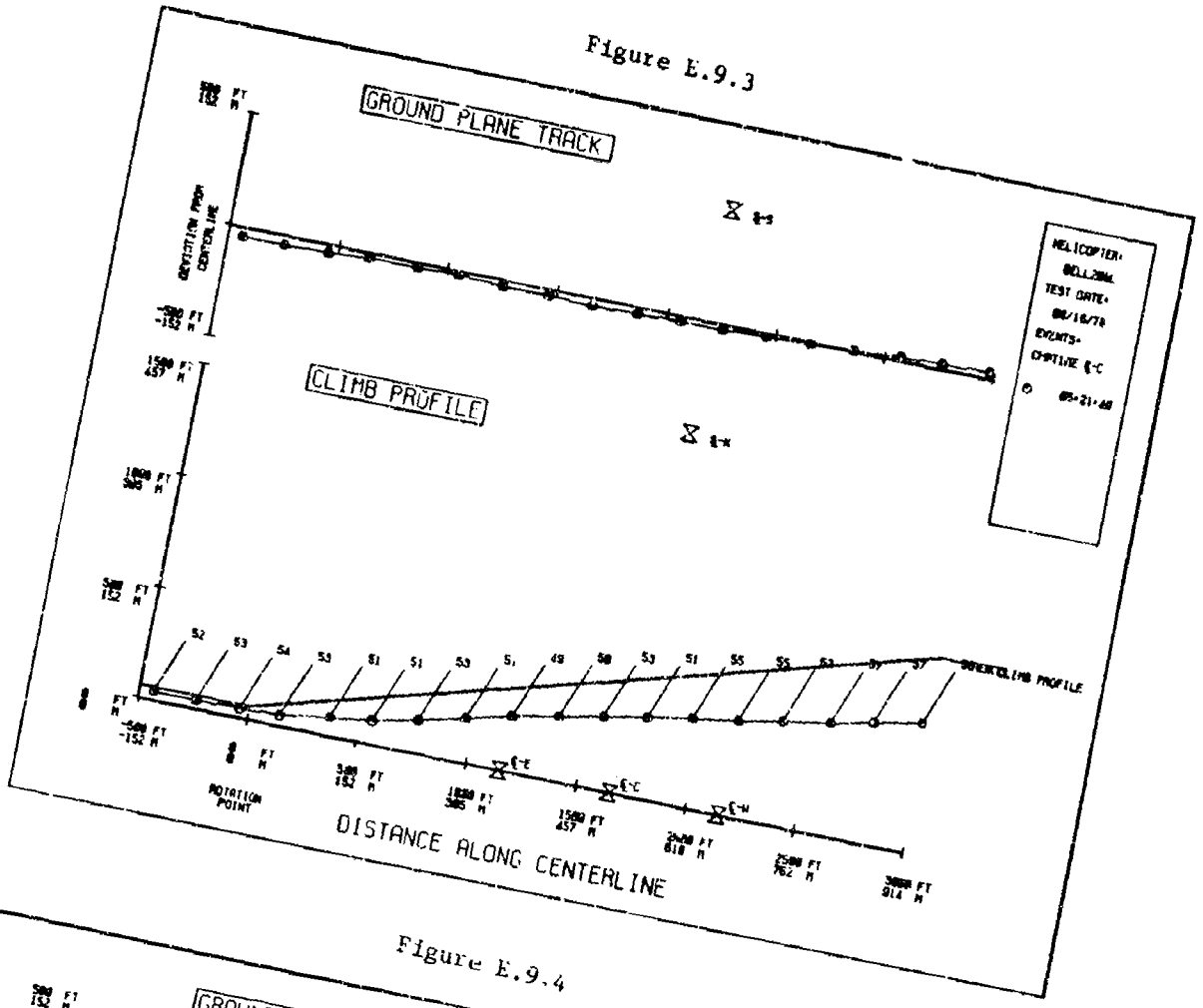


Figure E.9.4

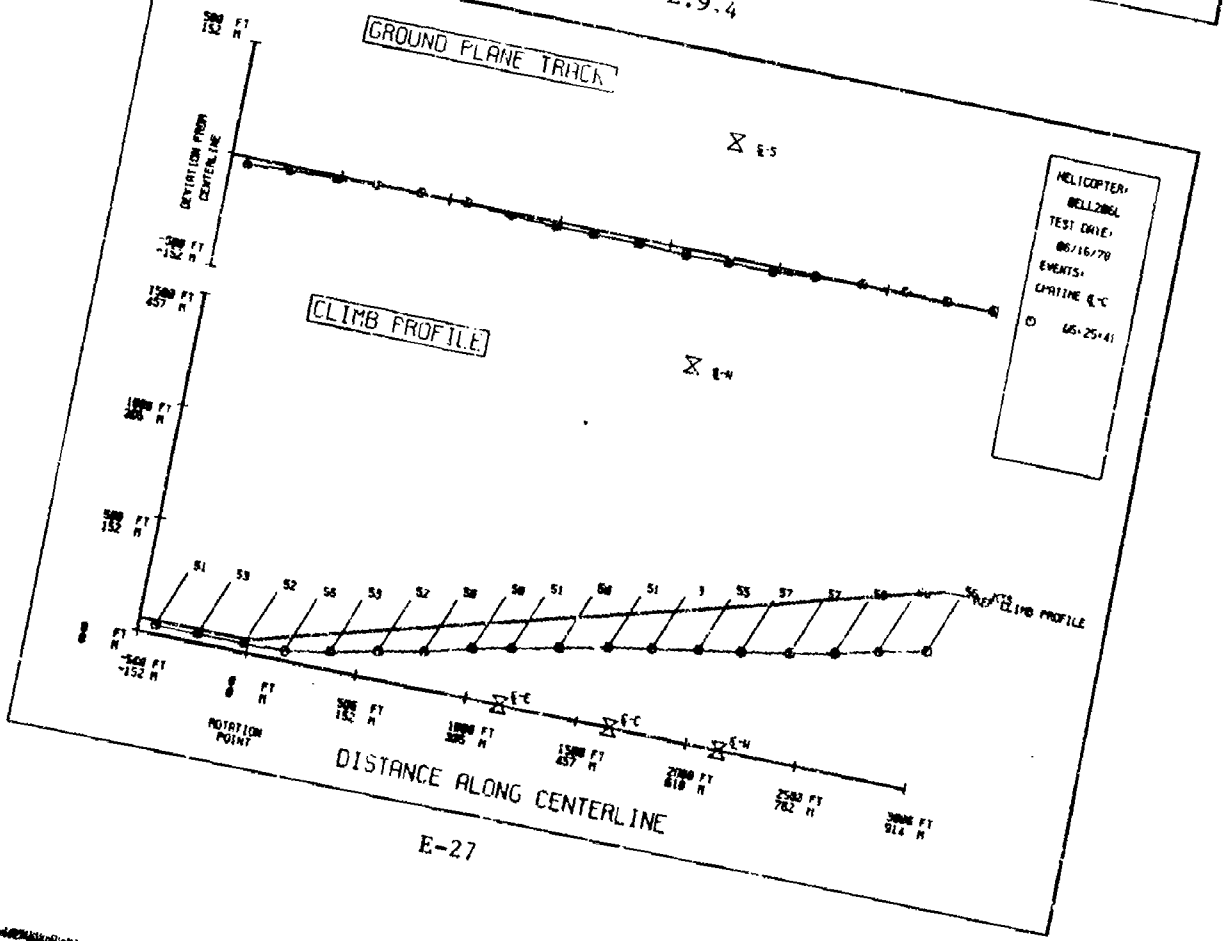


Figure E.9.5

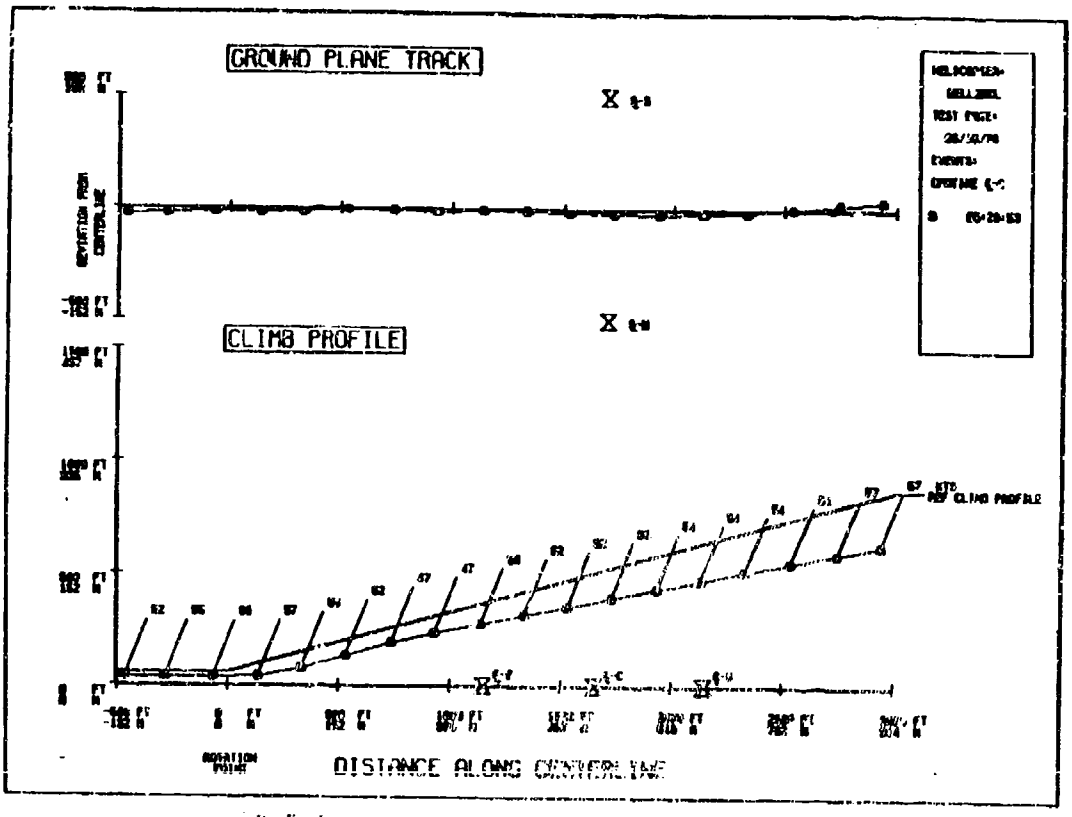


Figure E.9.6

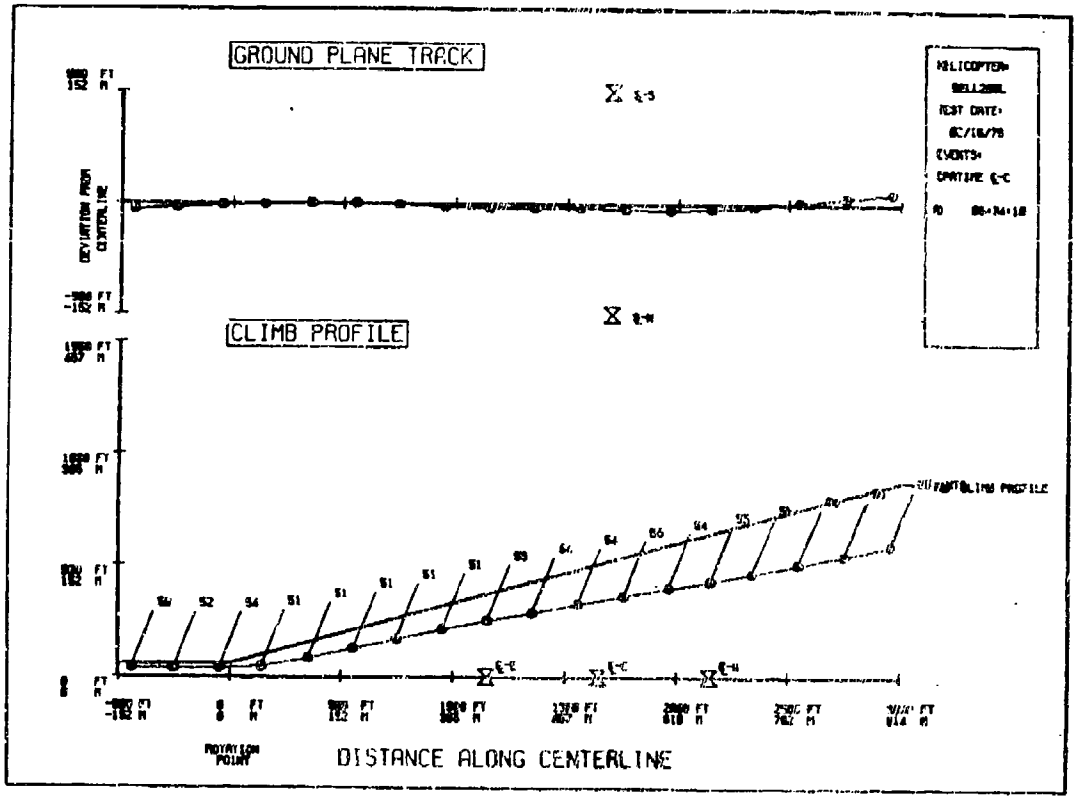


Figure E.10.1

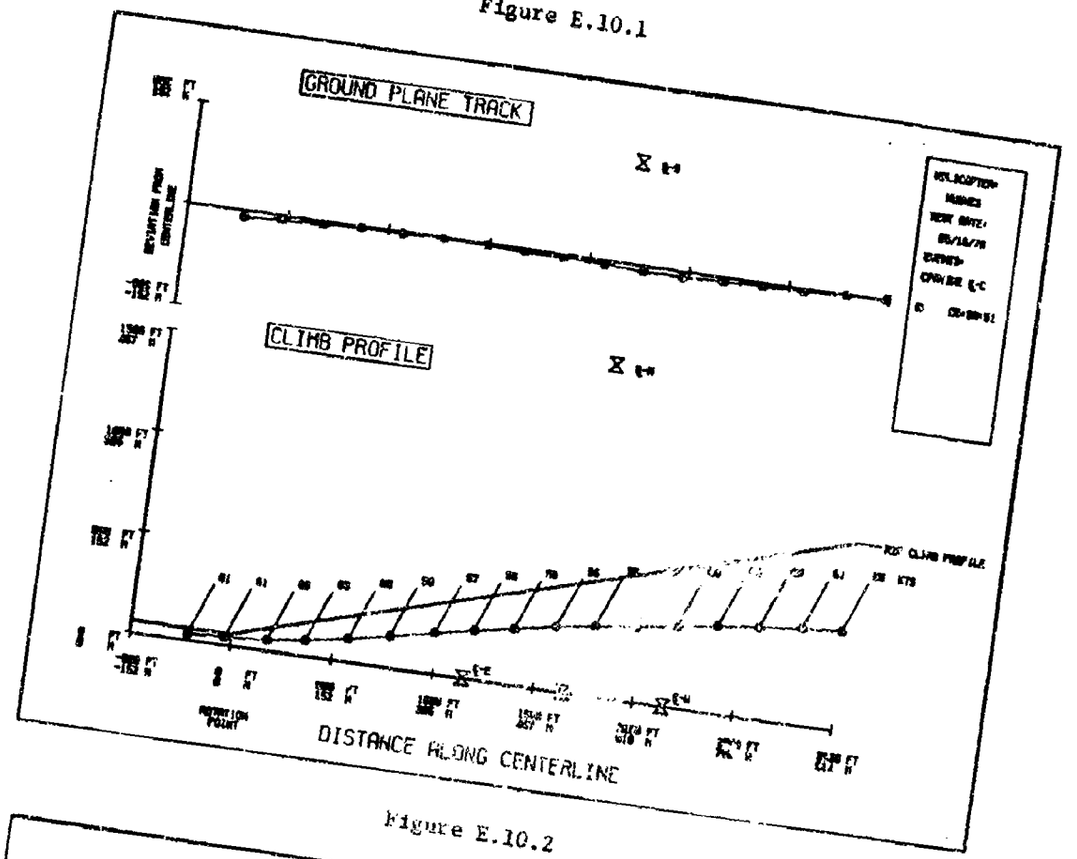


Figure E.10.2

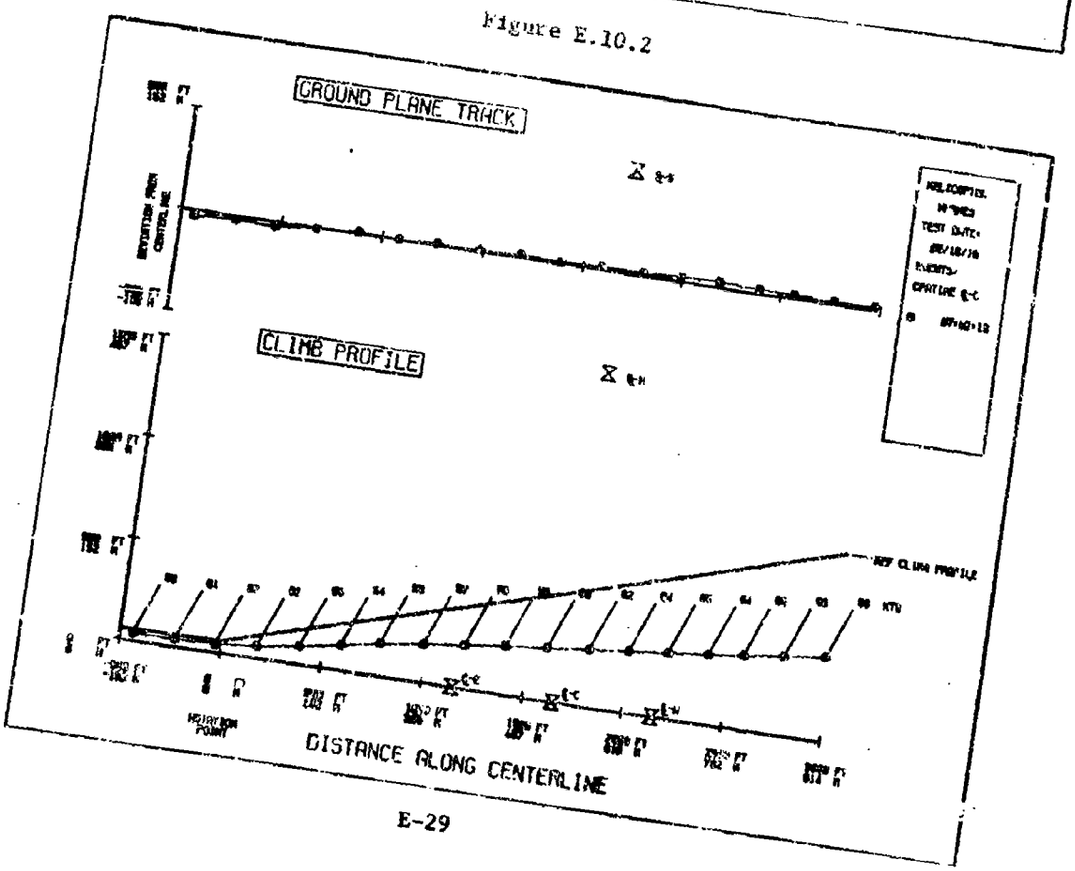


Figure E.10.3

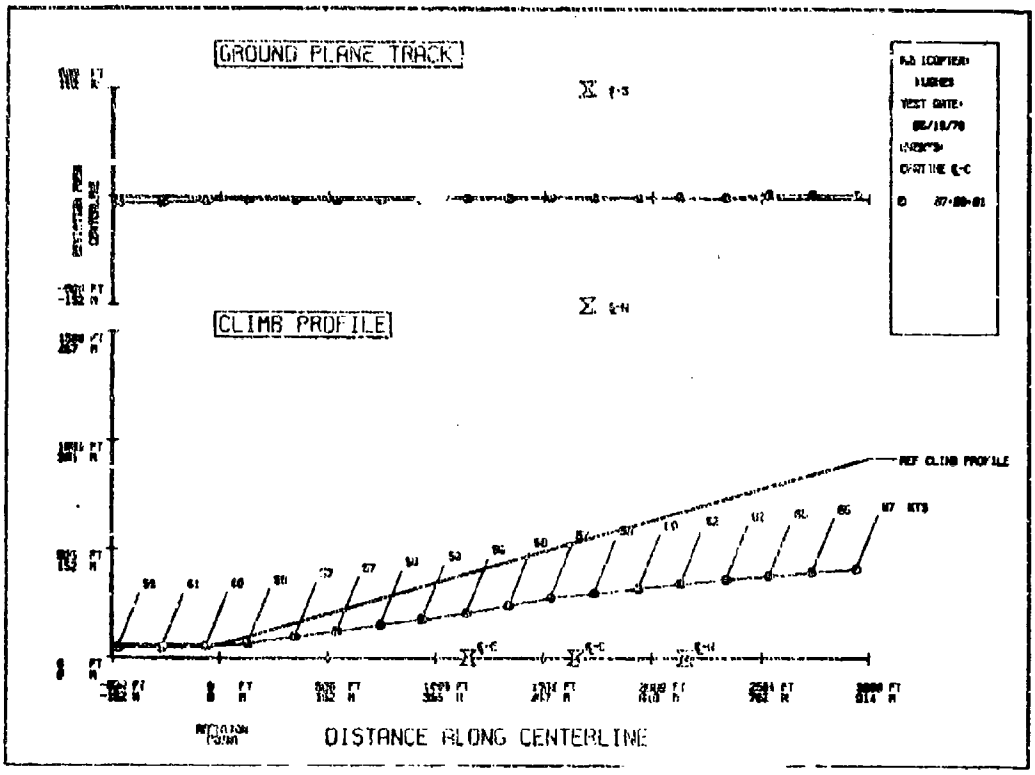


Figure E.10.4

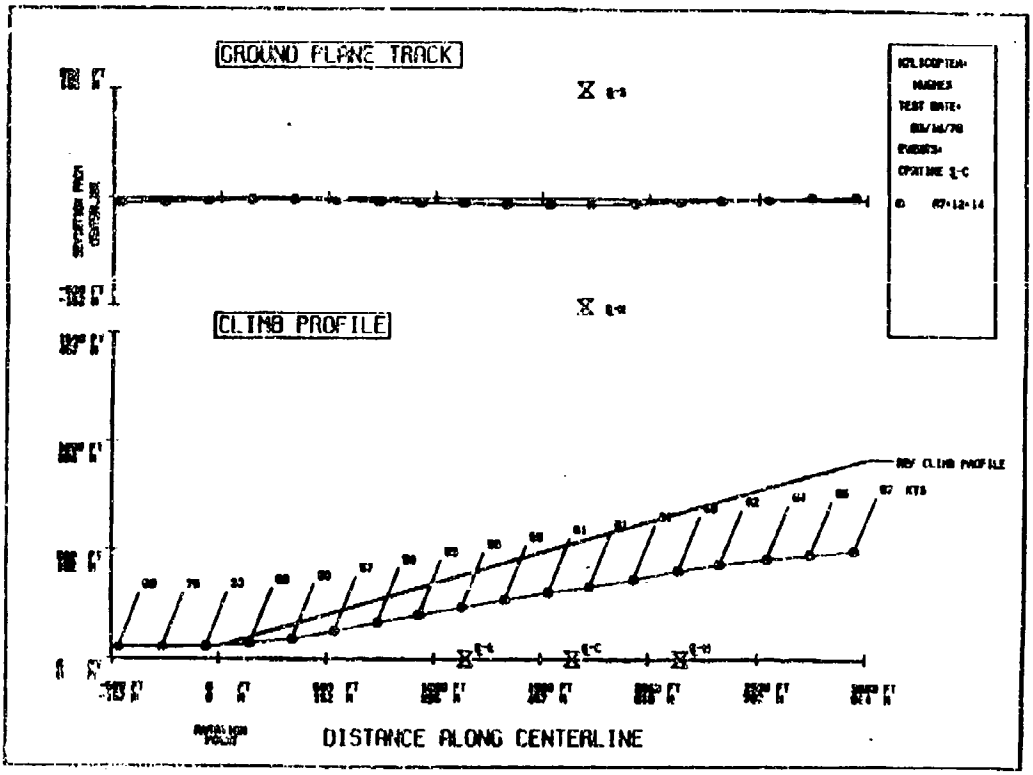


Figure E.10.5

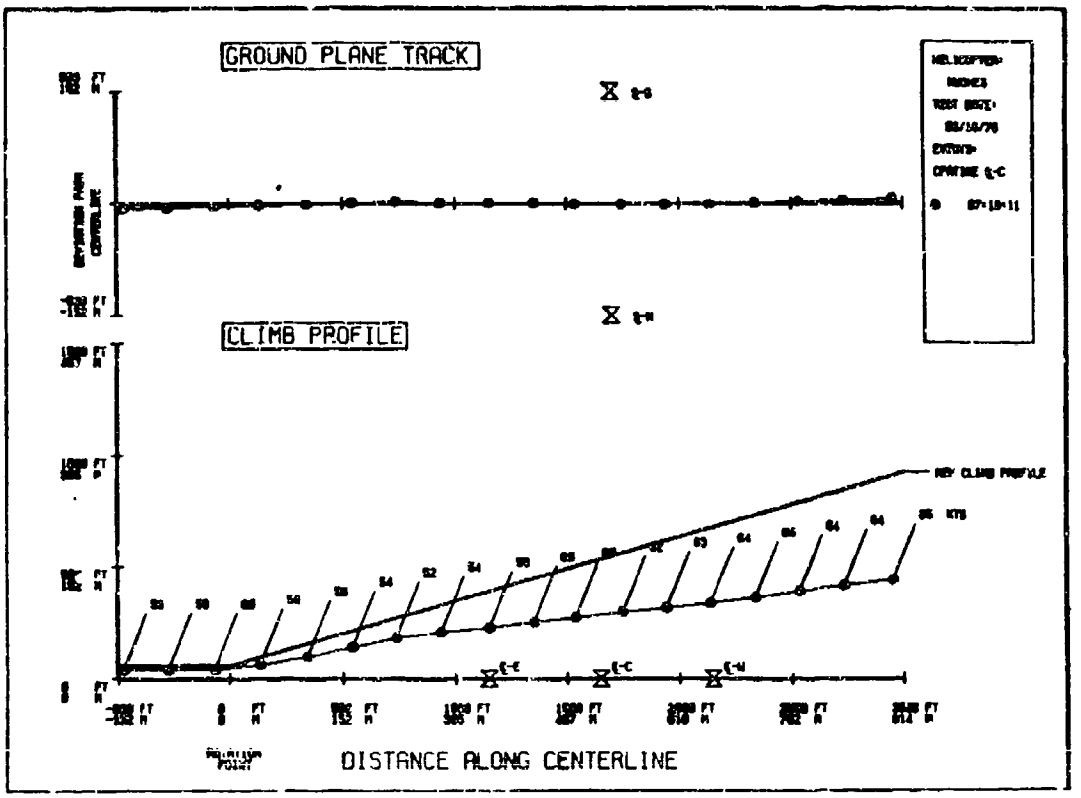
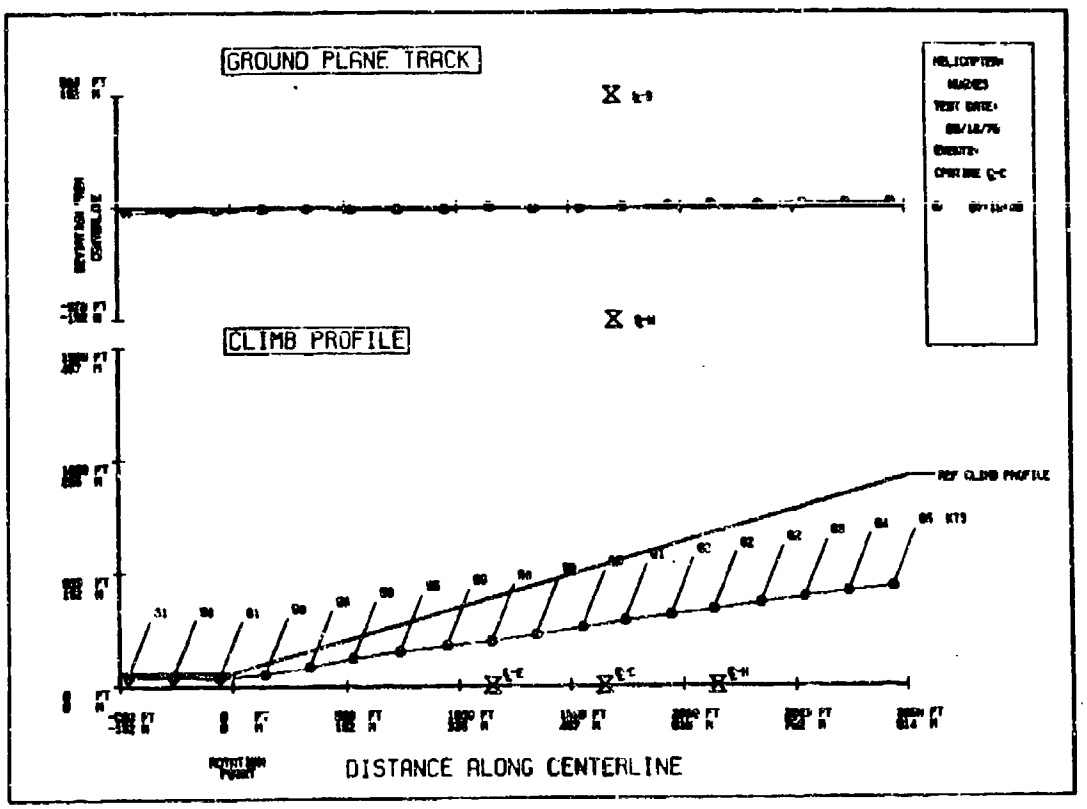


Figure E.10.6



APPENDIX F

Appendix F contains the results of the Atmospheric Absorption Analysis. Data are presented for CL-C, SL-S, and SL-N microphones.

Table F.1.a

PUMA SA 330-J HELICOPTER (FRENCH)

DOT/TSC
1/10/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 12,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
3	0.61	0.17	0.61	0.41	0.09	0.19	-0.03	0.19	119.0
5	0.44	0.06	0.45	0.28	0.00	0.11	-0.10	0.11	119.0
6	0.51	0.10	0.51	0.32	0.03	0.13	-0.08	0.13	119.0
Ave	0.52	0.11	0.52	0.34	0.04	0.14	-0.07	0.14	
Std Dev	0.09	0.06	0.08	0.07	0.05	0.04	0.04	0.04	
TAKEOFF									
7	1.27	0.28	1.17	0.75	0.10	0.29	-0.18	0.29	101.5
8	1.42	0.37	1.30	0.84	0.16	0.30	-0.15	0.30	101.5
10	1.17	0.25	1.08	0.70	0.09	0.27	-0.16	0.27	101.5
11	1.08	0.15	0.99	0.61	0.00	0.17	-0.26	0.17	101.5
12	1.28	0.27	1.17	0.75	0.09	0.28	-0.19	0.28	101.5
Ave	1.24	0.26	1.14	0.73	0.09	0.26	-0.19	0.26	
Std Dev	0.13	0.08	0.12	0.08	0.06	0.05	0.04	0.05	
LEVEL FLY-BY									
13	1.50	0.25	1.36	0.87	0.06	0.39	-0.23	0.39	150.0
14	1.42	0.32	1.29	0.91	0.21	0.53	-0.02	0.53	150.0
16	1.32	0.33	1.25	0.90	0.22	0.54	0.01	0.54	150.0
17	1.19	0.13	1.12	0.73	0.01	0.28	-0.24	0.28	150.0
18	1.40	0.17	1.28	0.79	0.01	0.25	-0.24	0.25	150.0
Ave	1.37	0.24	1.26	0.84	0.10	0.40	-0.14	0.40	
Std Dev	0.12	0.09	0.09	0.08	0.11	0.14	0.13	0.14	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.1.b

PUMA SA-330J HELICOPTER (FRENCH)

DOT/TSC
1/15/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 M. SOUTH JUNE 12,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
3	4.88	1.76	4.73	3.03	0.91	0.75	-0.26	0.75	193.4
5	2.58	0.28	2.45	1.01	0.09	0.28	-0.21	0.28	193.4
6	3.95	1.05	3.81	2.23	0.37	0.38	-0.16	0.38	193.4
Ave	3.80	1.03	3.66	2.09	0.46	0.47	-0.21	0.47	
Std Dev	1.16	0.74	1.15	1.02	0.42	0.25	0.05	0.25	
TAKEOFF									
7	2.25	0.33	2.15	0.99	0.16	0.29	-0.20	0.29	183.1
8	2.42	0.35	2.32	1.01	0.17	0.29	-0.20	0.29	183.1
9	2.81	0.41	2.72	1.24	0.22	0.33	-0.16	0.33	183.1
10	3.94	1.04	3.84	2.27	0.38	0.38	-0.14	0.38	183.1
11	3.43	0.60	3.33	1.81	0.24	0.34	-0.18	0.34	183.1
12	2.73	0.39	2.63	1.14	0.20	0.31	-0.19	0.31	183.1
Ave	2.93	0.52	2.83	1.41	0.23	0.32	-0.18	0.32	
Std Dev	0.64	0.27	0.64	0.52	0.08	0.03	0.02	0.03	
LEVEL FLY-BY									
13	2.42	0.36	2.33	1.10	0.17	0.34	-0.19	0.34	212.1
14	1.62	0.35	1.62	1.03	0.17	0.32	-0.18	0.32	212.1
16	1.58	0.30	1.58	0.98	0.12	0.28	-0.22	0.28	212.1
17	1.70	0.34	1.62	1.02	0.15	0.31	-0.20	0.31	212.1
18	3.14	0.39	3.03	1.36	0.19	0.33	-0.23	0.33	212.1
Ave	2.09	0.35	2.04	1.10	0.16	0.32	-0.20	0.32	
Std Dev	0.68	0.03	0.64	0.15	0.03	0.02	0.02	0.02	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.1.c

PUMA SA-330J HELICOPTER(FRENCH)

DOT/TSC
1/16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 12,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
3	3.96	1.12	3.83	2.28	0.45	0.32	-0.18	0.32	193.4
5	3.07	0.40	2.94	1.50	0.07	0.25	-0.21	0.25	193.4
6	2.64	0.26	2.51	1.10	0.08	0.27	-0.20	0.27	193.4
Ave	3.22	0.59	3.09	1.63	0.20	0.28	-0.20	0.28	
Std Dev	0.67	0.46	0.67	0.60	0.22	0.04	0.02	0.04	
TAKEOFF									
7	1.90	0.35	1.82	1.00	0.18	0.29	-0.17	0.29	183.1
8	1.63	0.36	1.55	1.00	0.21	0.33	-0.13	0.33	183.1
9	1.42	0.30	1.45	0.93	0.15	0.27	-0.18	0.27	183.1
10	1.59	0.22	1.50	0.86	0.07	0.20	-0.26	0.20	183.1
11	2.10	0.38	2.02	1.04	0.21	0.32	-0.14	0.32	183.1
12	2.84	0.45	2.75	1.28	0.26	0.37	-0.12	0.37	183.1
Ave	1.91	0.34	1.85	1.02	0.18	0.30	-0.17	0.30	
Std Dev	0.51	0.08	0.49	0.14	0.07	0.06	0.05	0.06	
LEVEL FLY-BY									
13	1.73	0.24	1.63	0.94	0.09	0.29	-0.23	0.29	212.1
14	2.25	0.32	2.15	1.07	0.13	0.28	-0.25	0.28	212.1
16	3.32	0.45	3.22	1.55	0.24	0.37	-0.18	0.37	212.1
17	3.11	0.33	2.97	1.38	0.15	0.44	-0.18	0.44	212.1
18	1.52	0.23	1.41	0.87	0.07	0.25	-0.24	0.25	212.1
Ave	2.39	0.31	2.28	1.16	0.14	0.33	-0.22	0.33	
Std Dev	0.81	0.09	0.90	0.29	0.07	0.08	0.03	0.08	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.2.a

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
1/10/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 12,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
25	0.46	0.01	0.49	0.33	-0.02	0.11	-0.14	0.11	119.0
26	0.47	0.01	0.49	0.31	-0.04	0.06	-0.17	0.06	119.0
27	0.48	0.03	0.50	0.33	-0.02	0.10	-0.14	0.10	119.0
28	0.43	0.03	0.47	0.33	0.00	0.13	-0.11	0.13	119.0
30	0.53	0.08	0.56	0.38	0.03	0.15	-0.09	0.15	119.0
Ave	0.47	0.03	0.50	0.34	-0.01	0.11	-0.13	0.11	
Std Dev	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
TAKEOFF									
19	1.30	0.35	1.30	0.84	0.19	0.23	-0.11	0.23	145.5
20	1.09	0.29	1.09	0.71	0.16	0.22	-0.09	0.22	145.5
21	0.93	0.23	0.94	0.62	0.13	0.19	-0.09	0.19	145.5
22	1.11	0.31	1.12	0.74	0.18	0.23	-0.07	0.23	145.5
23	1.11	0.30	1.12	0.73	0.17	0.22	-0.09	0.22	145.5
24	1.19	0.36	1.20	0.80	0.22	0.27	-0.04	0.27	145.5
Ave	1.12	0.31	1.13	0.74	0.17	0.23	-0.08	0.23	
Std Dev	0.12	0.05	0.12	0.08	0.03	0.03	0.02	0.03	
LEVEL FLY-BY									
31	0.87	0.18	0.88	0.58	0.08	0.19	-0.11	0.19	150.0
32	0.84	0.17	0.85	0.56	0.09	0.19	-0.10	0.19	150.0
33	0.84	0.16	0.85	0.55	0.06	0.16	-0.13	0.16	150.0
34	0.80	0.16	0.80	0.53	0.08	0.19	-0.10	0.19	150.0
35	0.78	0.10	0.79	0.51	0.02	0.16	-0.17	0.16	150.0
36	0.78	0.11	0.78	0.49	0.03	0.15	-0.15	0.15	150.0
37	0.81	0.13	0.81	0.52	0.03	0.15	-0.15	0.15	150.0
38	0.82	0.17	0.82	0.54	0.09	0.21	-0.09	0.21	150.0
Ave	0.82	0.15	0.82	0.53	0.06	0.17	-0.13	0.17	
Std Dev	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.02	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.2.b

BOELKOW BO-105 HELICOPTER (GERMAN)

DOT/TSC
1/15/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 M. SOUTH JUNE 12,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
25	0.87	0.10	0.88	0.58	0.03	0.24	-0.15	0.24	193.4
26	1.03	0.19	1.06	0.68	0.08	0.22	-0.15	0.22	193.4
27	0.96	0.17	0.99	0.65	0.08	0.24	-0.11	0.24	193.4
28	0.71	-0.02	0.72	0.43	-0.10	0.09	-0.27	0.09	193.4
30	1.08	0.23	1.11	0.72	0.12	0.27	-0.10	0.27	193.4
Ave	0.93	0.13	0.95	0.61	0.04	0.21	-0.16	0.21	
Std Dev	0.15	0.10	0.16	0.11	0.09	0.07	0.07	0.07	
TAKEOFF									
19	1.26	0.05	1.30	0.75	-0.11	0.06	-0.44	0.06	210.7
20	1.45	0.24	1.50	0.94	0.09	0.25	-0.25	0.25	210.7
21	1.42	0.28	1.47	0.96	0.15	0.32	-0.16	0.32	210.7
22	1.58	0.36	1.62	1.06	0.20	0.37	-0.13	0.37	210.7
23	1.50	0.28	1.54	0.99	0.13	0.30	-0.20	0.30	210.7
24	1.54	0.30	1.57	1.01	0.14	0.31	-0.20	0.31	210.7
Ave	1.46	0.25	1.50	0.95	0.10	0.27	-0.23	0.27	
Std Dev	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	
LEVEL FLY-BY									
31	2.56	0.52	2.35	1.46	0.15	0.51	-0.36	0.51	212.1
32	1.03	0.16	1.05	0.68	0.06	0.25	-0.15	0.25	212.1
33	2.64	0.57	2.42	1.51	0.18	0.54	-0.38	0.54	212.1
34	1.97	0.21	1.75	1.06	0.01	0.42	-0.33	0.42	212.1
35	1.00	0.16	1.02	0.66	0.07	0.26	-0.14	0.26	212.1
36	2.38	0.39	2.15	1.30	0.09	0.50	-0.25	0.50	212.1
37	1.04	0.18	1.06	0.69	0.08	0.28	-0.12	0.28	212.1
38	1.63	0.21	1.45	0.84	0.07	0.26	-0.21	0.26	212.1
Ave	1.78	0.30	1.66	1.03	0.09	0.38	-0.24	0.38	
Std Dev	0.71	0.17	0.60	0.36	0.05	0.13	0.10	0.13	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.2.c

BOELKOW BO-105 HELICOPTER(GERMAN)

DOT/TSC
1/16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 12,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
25	1.20	0.15	1.22	0.77	0.03	0.23	-0.24	0.23	210.7
26	1.29	0.21	1.32	0.85	0.09	0.27	-0.19	0.27	210.7
27	1.17	0.19	1.20	0.78	0.08	0.28	-0.17	0.28	210.7
28	1.32	0.24	1.33	0.83	0.09	0.23	-0.19	0.23	210.7
29	1.27	0.21	1.30	0.84	0.08	0.27	-0.20	0.27	210.7
30	1.12	0.15	1.17	0.74	0.04	0.24	-0.20	0.24	210.7
Ave	1.23	0.19	1.26	0.80	0.07	0.25	-0.20	0.25	
Std Dev	0.08	0.04	0.07	0.04	0.03	0.02	0.02	0.02	
TAKEOFF									
19	1.32	0.25	1.31	0.85	0.12	0.27	-0.16	0.27	193.4
20	1.33	0.25	1.37	0.88	0.11	0.25	-0.20	0.25	193.4
21	1.48	0.27	1.34	0.89	0.14	0.31	-0.14	0.31	193.4
22	1.68	0.30	1.51	0.92	0.16	0.32	-0.13	0.32	193.4
24	1.24	0.20	1.28	0.82	0.07	0.23	-0.22	0.23	193.4
Ave	1.41	0.25	1.36	0.87	0.12	0.28	-0.17	0.28	
Std Dev	0.17	0.04	0.09	0.04	0.03	0.04	0.04	0.04	
LEVEL FLY-BY									
31	1.01	0.17	1.07	0.70	0.08	0.27	-0.13	0.27	212.1
32	1.62	0.21	1.66	1.05	0.02	0.40	-0.32	0.40	212.1
33	1.01	0.11	1.02	0.64	0.00	0.19	-0.22	0.19	212.1
34	0.96	0.11	0.98	0.62	0.01	0.21	-0.19	0.21	212.1
35	2.37	0.40	2.14	1.30	0.05	0.43	-0.31	0.43	212.1
36	1.01	0.12	1.03	0.65	0.02	0.22	-0.19	0.22	212.1
37	1.78	0.27	1.78	1.11	0.07	0.45	-0.28	0.45	212.1
38	0.95	0.14	0.96	0.63	0.05	0.25	-0.15	0.25	212.1
Ave	1.39	0.19	1.33	0.84	0.04	0.30	-0.22	0.30	
Std Dev	0.57	0.10	0.46	0.27	0.03	0.11	0.07	0.11	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d: FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

Table F.3.a

BELL 206L HELICOPTER

DOT/TSC
1/10/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 13,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
7	0.46	0.07	0.49	0.35	0.03	0.15	-0.08	0.15	119.0
8	0.43	0.05	0.47	0.33	0.02	0.14	-0.08	0.14	119.0
9	0.36	0.01	0.40	0.28	-0.01	0.10	-0.10	0.10	119.0
10	0.51	0.10	0.55	0.37	0.05	0.13	-0.08	0.13	119.0
11	0.38	0.02	0.42	0.29	0.00	0.12	-0.09	0.12	119.0
12	0.49	0.05	0.52	0.37	0.02	0.15	-0.11	0.15	119.0
Ave	0.44	0.05	0.47	0.33	0.02	0.13	-0.09	0.13	
Std Dev	0.06	0.03	0.06	0.04	0.02	0.02	0.01	0.02	
TAKEOFF									
1	0.99	0.20	0.99	0.63	0.08	0.20	-0.15	0.20	149.5
2	0.89	0.19	0.90	0.59	0.09	0.19	-0.11	0.19	149.5
3	1.06	0.26	1.05	0.69	0.14	0.25	-0.09	0.25	149.5
4	1.20	0.31	1.19	0.78	0.17	0.26	-0.10	0.26	149.5
5	1.04	0.16	1.04	0.65	0.04	0.16	-0.20	0.16	149.5
6	1.09	0.28	1.10	0.74	0.16	0.28	-0.07	0.28	149.5
Ave	1.04	0.24	1.04	0.68	0.11	0.22	-0.12	0.22	
Std Dev	0.10	0.05	0.10	0.07	0.05	0.05	0.05	0.05	
LEVEL FLY-BY									
13	1.02	0.24	1.02	0.67	0.12	0.21	-0.11	0.21	150.0
14	1.02	0.23	1.03	0.68	0.12	0.25	-0.11	0.25	150.0
15	1.02	0.23	1.04	0.69	0.12	0.24	-0.11	0.24	150.0
16	1.02	0.20	1.03	0.68	0.09	0.21	-0.15	0.21	150.0
17	1.11	0.28	1.11	0.74	0.15	0.25	-0.10	0.25	150.0
18	1.38	0.27	1.23	0.77	0.15	0.26	-0.11	0.26	150.0
Ave	1.10	0.24	1.08	0.70	0.12	0.24	-0.12	0.24	
Std Dev	0.14	0.03	0.08	0.04	0.03	0.02	0.02	0.02	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.3.b

BELL 206L HELICOPTER

DOT/TSC
1/16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 M. SOUTH JUNE 13,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT ** RANGE (METERS)
APPROACH									
7	0.54	-0.02	0.61	0.41	-0.04	0.15	-0.18	0.15	193.4
8	0.92	0.12	0.97	0.60	0.02	0.15	-0.20	0.12	193.4
9	1.99	0.46	2.02	1.23	0.22	0.33	-0.19	0.33	254.3
10	1.96	0.40	1.98	1.19	0.17	0.29	-0.25	0.29	254.3
11	0.81	0.10	0.84	0.55	0.02	0.18	-0.16	0.18	193.4
12	1.19	0.20	1.21	0.75	0.06	0.17	-0.23	0.17	193.4
Ave	1.24	0.21	1.27	0.79	0.07	0.21	-0.20	0.21	
Std Dev	0.61	0.19	0.60	0.34	0.10	0.08	0.03	0.08	
TAKEOFF									
1	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.0
2	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	0.0
3	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.0
4	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.0
5	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0
6	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	0.0
Ave	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Std Dev	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
LEVEL FLY-BY									
13	1.81	0.30	1.60	0.94	0.13	0.29	-0.21	0.29	212.1
14	2.12	0.39	1.93	1.09	0.17	0.29	-0.22	0.29	212.1
15	0.73	0.06	0.75	0.49	0.00	0.21	-0.16	0.21	212.1
16	2.54	0.47	2.33	1.40	0.15	0.49	-0.33	0.49	212.1
17	2.72	0.55	2.52	1.53	0.16	0.48	-0.32	0.48	212.1
18	2.35	0.42	2.17	1.21	0.20	0.32	-0.19	0.32	212.1
Ave	2.05	0.36	1.88	1.11	0.14	0.35	-0.24	0.35	
Std Dev	0.72	0.17	0.64	0.37	0.07	0.11	0.07	0.11	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.3.c

BELL 206L HELICOPTER

DOT/TSC
1/18/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 13,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
7	2.03	0.63	1.82	1.20	0.48	0.70	0.25	0.70	193.4
8	2.70	1.84	2.74	2.34	1.72	1.85	1.49	1.85	193.4
9	2.68	1.91	2.73	2.39	1.81	1.94	1.60	1.94	193.4
10	2.57	1.74	2.61	2.24	1.64	1.75	1.41	1.75	193.4
11	3.39	2.59	3.44	3.07	2.49	2.60	2.27	2.60	193.4
12	1.85	1.05	1.90	1.55	0.96	1.11	0.75	1.11	193.4
Ave	2.54	1.63	2.54	2.13	1.52	1.66	1.30	1.66	
Std Dev	0.55	0.69	0.60	0.66	0.70	0.67	0.70	0.67	
TAKEOFF									
1	1.52	0.27	1.50	0.94	0.12	0.27	-0.21	0.27	213.5
2	1.41	0.25	1.40	0.85	0.07	0.20	-0.24	0.20	213.5
3	1.42	0.22	1.40	0.85	0.05	0.22	-0.26	0.22	213.5
4	1.58	0.32	1.57	0.98	0.14	0.28	-0.21	0.28	213.5
5	1.46	0.27	1.44	0.90	0.10	0.28	-0.20	0.28	213.5
6	2.06	0.18	1.83	1.05	-0.02	0.39	-0.34	0.39	213.5
Ave	1.58	0.25	1.52	0.93	0.08	0.27	-0.24	0.27	
Std Dev	0.25	0.05	0.16	0.08	0.06	0.07	0.05	0.07	
LEVEL FLY-BY									
13	2.70	0.50	2.47	1.47	0.19	0.53	-0.27	0.53	212.1
14	3.65	2.11	3.45	2.81	1.91	2.05	1.54	2.05	212.1
15	3.82	2.16	3.62	2.84	1.94	2.06	1.57	2.06	212.1
16	4.02	2.14	3.81	2.85	1.94	2.09	1.57	2.09	212.1
17	4.02	2.13	3.81	3.04	1.84	2.21	1.39	2.21	212.1
18	1.47	1.00	1.46	1.37	0.96	1.12	0.86	1.12	212.1
Ave	3.28	1.67	3.11	2.39	1.46	1.68	1.11	1.68	
Std Dev	1.01	0.73	0.94	0.78	0.73	0.69	0.73	0.69	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX B, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.4.a

SIKORSKY S61 HELICOPTER

DOT/TSC
1/11/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 14,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT ** RANGE (METERS)
APPROACH									
7	0.57	0.12	0.58	0.39	0.06	0.13	-0.08	0.13	119.0
8	0.55	0.10	0.57	0.39	0.05	0.15	-0.08	0.15	119.0
9	0.47	0.06	0.48	0.32	0.00	0.09	-0.12	0.09	119.0
10	0.64	0.13	0.65	0.44	0.06	0.15	-0.09	0.15	119.0
11	0.57	0.12	0.59	0.41	0.07	0.16	-0.06	0.16	119.0
12	0.47	0.05	0.50	0.33	0.00	0.10	-0.12	0.10	119.0
Ave	0.54	0.10	0.56	0.38	0.04	0.13	-0.09	0.13	
Std Dev	0.07	0.03	0.06	0.05	0.03	0.03	0.02	0.03	
TAKEOFF									
1	0.99	0.18	0.89	0.58	0.04	0.22	-0.17	0.22	91.4
2	0.94	0.12	0.84	0.52	-0.01	0.18	-0.22	0.18	91.4
3	0.76	0.04	0.69	0.43	-0.06	0.11	-0.25	0.11	91.4
4	0.91	0.15	0.83	0.53	0.02	0.19	-0.19	0.19	91.4
5	0.90	0.17	0.81	0.55	0.07	0.24	-0.11	0.24	91.4
6	0.92	0.13	0.83	0.52	0.00	0.18	-0.21	0.18	91.4
Ave	0.90	0.13	0.81	0.52	0.01	0.19	-0.19	0.19	
Std Dev	0.08	0.05	0.07	0.05	0.04	0.04	0.05	0.04	
LEVEL FLY-BY									
13	1.35	0.19	1.23	0.78	0.00	0.29	-0.28	0.29	150.0
14	1.52	0.27	1.38	0.88	0.06	0.35	-0.25	0.35	150.0
16	1.52	0.30	1.39	0.91	0.10	0.39	-0.20	0.39	150.0
18	1.48	0.27	1.35	0.87	0.07	0.35	-0.23	0.35	150.0
20	1.25	0.18	1.13	0.68	0.08	0.25	-0.15	0.25	150.0
21	1.31	0.03	1.17	0.66	-0.18	0.10	-0.50	0.10	150.0
22	1.61	0.28	1.46	0.95	0.06	0.35	-0.28	0.35	150.0
23	1.29	0.13	1.15	0.70	0.00	0.31	-0.23	0.31	150.0
24	1.39	0.20	1.27	0.80	0.05	0.34	-0.19	0.34	150.0
Ave	1.41	0.21	1.28	0.80	0.03	0.30	-0.24	0.30	
Std Dev	0.12	0.09	0.12	0.10	0.08	0.09	0.10	0.09	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAN 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.4.b

SIKORSKY S61 HELICOPTER

DOT/TSC
1/16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 M. SOUTH JUNE 14,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	05/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
8	1.53	0.25	1.39	0.80	0.12	0.30	-0.13	0.30	193.4
9	1.11	0.18	1.12	0.71	0.06	0.24	-0.18	0.24	193.4
10	1.93	0.32	1.78	1.11	0.05	0.40	-0.34	0.40	193.4
11	1.99	0.35	1.85	1.16	0.09	0.40	-0.32	0.40	193.4
12	1.95	0.34	1.81	1.13	0.08	0.40	-0.32	0.40	193.4
Ave	1.70	0.29	1.59	0.98	0.08	0.35	-0.26	0.35	
Std Dev	0.38	0.07	0.32	0.21	0.03	0.07	0.10	0.07	
TAKEOFF									
1	2.42	0.56	2.23	1.39	0.21	0.47	-0.27	0.47	177.7
2	2.37	0.52	2.18	1.35	0.16	0.42	-0.37	0.42	177.7
3	2.27	0.49	2.06	1.28	0.15	0.44	-0.36	0.44	177.7
4	2.15	0.41	1.96	1.19	0.14	0.45	-0.37	0.45	177.7
5	2.28	0.54	2.08	1.32	0.20	0.49	-0.29	0.49	177.7
6	2.18	0.45	1.98	1.23	0.11	0.41	-0.33	0.41	177.7
Ave	2.28	0.49	2.08	1.29	0.16	0.45	-0.32	0.45	
Std Dev	0.10	0.06	0.11	0.08	0.04	0.03	0.05	0.03	
LEVEL FLY-BY									
13	1.67	0.26	1.52	0.93	0.12	0.31	-0.19	0.31	212.1
14	2.29	0.44	2.11	1.33	0.15	0.52	-0.30	0.52	212.1
16	2.12	0.33	1.93	1.21	0.05	0.48	-0.35	0.48	212.1
18	2.36	0.45	2.16	1.32	0.16	0.53	-0.28	0.53	212.1
20	2.27	0.39	2.06	1.26	0.11	0.48	-0.33	0.48	212.1
21	2.10	0.34	1.92	1.20	0.07	0.46	-0.34	0.46	212.1
22	2.20	0.42	2.04	1.29	0.14	0.50	-0.26	0.50	212.1
23	2.07	0.34	1.89	1.20	0.07	0.47	-0.32	0.47	212.1
24	1.42	0.22	1.37	0.89	0.09	0.31	-0.20	0.31	212.1
Ave	2.06	0.35	1.89	1.18	0.11	0.45	-0.29	0.45	
Std Dev	0.31	0.08	0.27	0.16	0.04	0.08	0.06	0.08	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.4.c

SIKORSKY S61 HELICOPTER

DOT/TSC
1/18/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 14,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
8	1.62	0.24	1.47	0.85	0.10	0.29	-0.18	0.29	193.4
9	0.93	0.17	0.94	0.62	0.08	0.25	-0.11	0.25	193.4
10	1.60	0.30	1.46	0.87	0.15	0.31	-0.13	0.31	193.4
11	1.01	0.21	1.01	0.69	0.13	0.29	-0.08	0.29	193.4
12	1.15	0.20	1.15	0.73	0.07	0.22	-0.18	0.22	193.4
Ave	1.26	0.22	1.21	0.75	0.10	0.27	-0.14	0.27	
Std Dev	0.33	0.05	0.25	0.11	0.03	0.04	0.04	0.04	
TAKEOFF									
1	1.06	0.13	1.08	0.71	0.03	0.23	-0.21	0.23	177.7
2	1.46	0.24	1.31	0.81	0.12	0.31	-0.13	0.31	177.7
3	1.52	0.23	1.41	0.92	0.09	0.37	-0.17	0.37	177.7
4	1.31	0.24	1.18	0.80	0.13	0.32	-0.12	0.32	177.7
5	1.14	0.22	1.15	0.78	0.12	0.31	-0.12	0.31	177.7
6	1.30	0.18	1.16	0.74	0.08	0.28	-0.16	0.28	177.7
Ave	1.30	0.21	1.21	0.79	0.09	0.30	-0.15	0.30	
Std Dev	0.18	0.04	0.12	0.07	0.04	0.05	0.04	0.05	
LEVEL FLY-BY									
13	1.91	0.20	1.68	1.02	-0.04	0.40	-0.40	0.40	212.1
14	2.62	0.33	1.85	1.18	0.09	0.50	-0.19	0.50	212.1
18	1.80	0.18	1.62	0.95	0.06	0.33	-0.22	0.33	212.1
20	1.47	0.15	1.34	0.79	0.02	0.25	-0.24	0.25	212.1
21	2.09	0.33	1.90	1.20	0.07	0.49	-0.28	0.49	212.1
22	1.51	0.24	1.37	0.89	0.10	0.33	-0.18	0.33	212.1
23	1.45	0.16	1.26	0.75	0.04	0.30	-0.18	0.30	212.1
24	1.51	0.13	1.38	0.83	0.00	0.26	-0.26	0.26	212.1
Ave	1.72	0.21	1.55	0.95	0.04	0.36	-0.24	0.36	
Std Dev	0.27	0.08	0.25	0.17	0.05	0.10	0.07	0.10	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.5.a

SIKORSKY CH53 HELICOPTER

DOT/TSC
1/11/79

TEMPERATURE/RELATI E HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 14,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
25	0.54	0.07	0.54	0.42	0.02	0.11	-0.09	0.11	119.0
26	0.41	0.06	0.44	0.30	0.03	0.12	-0.07	0.12	119.0
27	0.40	0.02	0.41	0.27	-0.02	0.08	-0.12	0.08	119.0
28	0.50	0.07	0.52	0.36	0.03	0.13	-0.10	0.13	119.0
29	0.06	-0.09	0.09	0.10	-0.06	0.09	-0.07	0.09	119.0
30	0.05	-0.11	0.10	0.10	-0.07	0.10	-0.08	0.10	119.0
Ave	0.33	0.00	0.35	0.24	-0.01	0.11	-0.09	0.11	
Std Dev	0.22	0.08	0.20	0.13	0.05	0.02	0.02	0.02	
TAKEOFF									
32	0.98	0.27	0.98	0.68	0.17	0.28	-0.05	0.28	134.9
33	0.76	0.13	0.77	0.51	0.05	0.20	-0.11	0.20	134.9
34	0.89	0.16	0.90	0.58	0.06	0.17	-0.16	0.17	134.9
35	0.91	0.13	0.83	0.53	0.03	0.14	-0.13	0.14	134.9
36	0.77	0.16	0.77	0.51	0.08	0.23	-0.09	0.23	134.9
37	1.01	0.21	0.91	0.62	0.12	0.24	-0.03	0.24	134.9
Ave	0.89	0.18	0.86	0.57	0.08	0.21	-0.12	0.21	
Std Dev	0.10	0.05	0.08	0.07	0.05	0.05	0.05	0.05	
LEVEL FLY-BY									
38	0.39	-0.04	0.42	0.29	-0.06	0.13	-0.15	0.13	150.0
39	0.72	0.09	0.73	0.48	0.01	0.16	-0.16	0.16	150.0
40	0.87	0.10	0.76	0.48	0.01	0.15	-0.17	0.15	150.0
Ave	0.66	0.05	0.64	0.42	-0.01	0.15	-0.16	0.15	
Std Dev	0.25	0.08	0.19	0.11	0.04	0.02	0.01	0.02	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR 1/3RD SPECTRO PER APPENDIX A, SECTION d, FOR 3σ, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.5.b

SIKORSKY CH53 HELICOPTER

DOT/TSC
1/16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 M. SOUTH JUNE 14,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT ** RANGE (METERS)
APPROACH									
25	0.73	0.08	0.75	0.50	0.01	0.19	-0.15	0.19	193.4
26	0.36	-0.65	0.43	0.32	-0.03	0.20	-0.11	0.20	193.4
27	0.72	0.08	0.75	0.50	0.02	0.20	-0.14	0.20	193.4
28	0.70	0.09	0.74	0.50	0.04	0.21	-0.12	0.21	193.4
29	0.85	0.09	0.89	0.57	0.00	0.17	-0.20	0.17	193.4
30	0.63	0.07	0.67	0.47	0.03	0.22	-0.10	0.22	193.4
Ave	0.66	0.06	0.70	0.48	0.01	0.20	-0.14	0.20	
Std Dev	0.17	0.05	0.15	0.08	0.02	0.02	0.04	0.02	
TAKEOFF									
32	0.92	0.14	0.97	0.64	0.04	0.25	-0.13	0.25	203.6
33	0.80	0.04	0.90	0.58	-0.03	0.18	-0.22	0.18	203.6
34	0.91	0.11	0.95	0.61	0.03	0.24	-0.16	0.24	203.6
35	0.60	-0.03	0.67	0.45	-0.05	0.17	-0.20	0.17	203.6
36	0.56	0.02	0.73	0.49	-0.01	0.20	-0.16	0.20	203.6
37	0.58	0.09	0.65	0.45	-0.01	0.20	-0.15	0.20	203.6
Ave	0.75	0.05	0.81	0.54	-0.00	0.21	-0.17	0.21	
Std Dev	0.16	0.07	0.14	0.09	0.04	0.03	0.04	0.03	
LEVEL FLY-BY									
38	0.68	0.02	0.71	0.46	-0.02	0.18	-0.17	0.18	212.1
39	0.50	-0.01	0.55	0.39	-0.03	0.17	-0.14	0.17	212.1
40	0.78	0.07	0.82	0.53	0.02	0.28	-0.13	0.26	212.1
Ave	0.65	0.03	0.69	0.48	-0.01	0.21	-0.15	0.21	
Std Dev	0.14	0.04	0.14	0.10	0.03	0.06	0.02	0.05	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PINK SPECTRA PER APPENDIX A, SECTION A, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.5.c

SIKORSKY CH53 HELICOPTER

DOT/TSC
1/18/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 14,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
25	0.62	0.04	0.65	0.42	-0.01	0.14	-0.16	0.14	193.4
26	0.56	0.04	0.60	0.40	0.00	0.16	-0.12	0.16	193.4
27	0.56	0.01	0.60	0.39	-0.03	0.15	-0.16	0.15	193.4
28	0.64	0.07	0.68	0.46	0.02	0.20	-0.12	0.20	193.4
29	0.53	0.04	0.58	0.40	0.00	0.17	-0.11	0.17	193.4
30	0.56	0.03	0.60	0.41	0.00	0.18	-0.13	0.18	193.4
Ave	0.58	0.04	0.62	0.41	-0.00	0.17	-0.13	0.17	
Std Dev	0.04	0.02	0.04	0.03	0.02	0.02	0.02	0.02	
TAKEOFF									
32	0.92	0.10	0.96	0.65	0.03	0.26	-0.16	0.26	203.6
33	0.68	0.02	0.71	0.46	-0.04	0.15	-0.20	0.15	203.6
34	0.83	0.02	0.87	0.56	-0.05	0.18	-0.24	0.18	203.6
35	0.76	0.03	0.80	0.52	-0.02	0.19	-0.20	0.19	203.6
36	0.92	0.17	0.94	0.64	0.09	0.29	-0.10	0.29	203.6
37	0.77	0.07	0.82	0.55	0.02	0.23	-0.15	0.23	203.6
Ave	0.81	0.07	0.85	0.56	0.00	0.22	-0.17	0.22	
Std Dev	0.10	0.06	0.09	0.07	0.05	0.05	0.05	0.05	
LEVEL FLY-BY									
38	0.37	-0.06	0.42	0.30	-0.06	0.17	-0.14	0.17	212.1
39	0.77	0.06	0.77	0.56	0.00	0.31	-0.14	0.31	212.1
40	0.80	0.03	0.81	0.51	-0.04	0.17	-0.22	0.17	212.1
Ave	0.65	0.00	0.67	.46	-0.03	0.22	-0.17	0.22	
Std Dev	0.24	0.05	0.21	0.14	0.03	0.08	0.05	0.08	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d. + / 3σ AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL - CPA REFERENCE

Table F.6.a

BELL 212 HELICOPTER

DOT/TSC
1/11/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 15,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
7	0.19	-0.02	0.24	0.16	-0.02	0.06	-0.08	0.06	119.0
8	0.28	-0.02	0.30	0.20	-0.05	0.05	-0.12	0.05	119.0
9	0.28	0.06	0.31	0.24	0.05	0.15	0.00	0.15	119.0
10	0.15	-0.02	0.20	0.15	-0.01	0.09	-0.05	0.09	119.0
11	0.19	-0.05	0.24	0.16	-0.06	0.03	-0.13	0.03	119.0
Ave	0.22	-0.01	0.26	0.18	-0.02	0.08	-0.08	0.08	
Std Dev	0.06	0.04	0.05	0.04	0.04	0.05	0.05	0.05	
TAKEOFF									
1	1.02	0.13	0.98	0.65	0.03	0.24	-0.18	0.24	139.7
2	0.52	-0.01	0.53	0.31	-0.08	0.02	-0.23	0.02	139.7
3	0.63	0.11	0.66	0.43	0.04	0.12	-0.12	0.12	139.7
4	0.91	0.12	0.95	0.46	0.05	0.15	-0.11	0.15	139.7
5	0.47	-0.10	0.48	0.23	-0.18	-0.10	-0.35	-0.10	139.7
6	0.47	0.03	0.50	0.33	-0.01	0.09	-0.13	0.09	139.7
Ave	0.67	0.05	0.68	0.40	-0.02	0.09	-0.19	0.09	
Std Dev	0.24	0.09	0.23	0.15	0.09	0.12	0.09	0.12	
LEVEL FLY-BY									
13	-0.04	-0.17	0.02	0.03	-0.13	0.03	-0.13	0.03	150.0
14	0.25	-0.07	0.25	0.17	-0.09	0.08	-0.16	0.08	150.0
15	0.34	0.07	0.36	0.31	0.07	0.26	0.04	0.26	150.0
16	0.19	0.07	0.25	0.26	0.11	0.26	0.10	0.26	150.0
17	0.32	0.03	0.32	0.27	0.03	0.22	-0.01	0.22	150.0
18	0.27	0.09	0.31	0.31	0.12	0.29	0.10	0.29	150.0
Ave	0.22	0.00	0.25	0.22	0.02	0.19	-0.01	0.19	
Std Dev	0.14	0.10	0.12	0.11	0.11	0.11	0.11	0.11	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.6.b

BELL 212 HELICOPTER

DOT/TSC
1/16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 M. SOUTH JUNE 15,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT ** RANGE (METERS)
APPROACH									
7	1.35	0.58	1.39	1.02	0.47	0.59	-0.10	0.59	193.4
8	0.98	0.17	0.98	0.64	0.09	0.24	-0.11	0.24	193.4
9	1.50	0.68	1.53	1.14	0.56	0.68	-0.15	0.68	193.4
10	0.94	0.10	0.95	0.57	0.00	0.14	-0.20	0.14	193.4
11	0.93	0.14	0.96	0.61	0.02	0.15	-0.18	0.15	193.4
Ave	1.14	0.33	1.16	0.80	0.23	0.36	-0.15	0.36	
Std Dev	0.27	0.27	0.28	0.26	0.27	0.26	0.04	0.26	
TAKEOFF									
1	0.90	0.07	0.96	0.64	0.00	0.22	-0.20	0.22	206.8
2	0.88	0.09	0.93	0.64	0.04	0.29	-0.13	0.29	206.8
3	0.24	-0.15	0.33	0.29	-0.09	0.22	-0.14	0.22	206.8
4	1.12	0.20	1.18	0.79	0.10	0.29	-0.14	0.29	206.8
5	0.76	0.03	0.81	0.55	-0.02	0.23	-0.18	0.23	206.8
6	2.32	1.52	2.38	2.07	1.46	1.69	1.28	1.69	206.8
Ave	1.04	0.29	1.10	0.83	0.25	0.49	0.08	0.49	
Std Dev	0.69	0.61	0.69	0.63	0.60	0.59	0.59	0.59	
LEVEL FLY-BY									
13	0.67	-0.03	0.69	0.47	-0.07	0.19	-0.21	0.19	212.1
14	1.00	0.09	1.00	0.63	-0.01	0.20	-0.24	0.20	212.1
15	0.42	0.04	0.44	0.33	0.03	0.22	-0.04	0.22	212.1
16	1.62	0.24	1.57	1.03	0.09	0.42	-0.21	0.42	212.1
17	1.08	0.15	1.13	0.76	0.06	0.29	-0.17	0.29	212.1
18	1.57	0.23	1.50	0.99	0.08	0.44	-0.20	0.44	212.1
Ave	1.06	0.12	1.05	0.70	0.03	0.29	-0.18	0.29	
Std Dev	0.48	0.11	0.44	0.28	0.06	0.11	0.07	0.11	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.6.c

BELL 212 HELICOPTER

DOT/TSC
1/18/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 15,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
7	0.37	0.00	0.43	0.31	-0.01	0.18	-0.09	0.18	193.4
8	0.33	-0.09	0.37	0.24	-0.10	0.09	-0.19	0.09	193.4
9	0.24	-0.08	0.30	0.21	-0.08	0.10	-0.14	0.10	193.4
10	0.11	-0.12	0.20	0.18	-0.08	0.12	-0.12	0.12	193.4
11	0.16	-0.08	0.25	0.20	-0.06	0.13	-0.11	0.13	193.4
Ave	0.24	-0.07	0.31	0.23	-0.07	0.12	-0.13	0.12	
Std Dev	0.11	0.04	0.09	0.05	0.03	0.04	0.04	0.04	
TAKEOFF									
1	0.69	0.01	0.74	0.51	-0.03	0.24	-0.17	0.24	206.8
2	0.65	0.00	0.71	0.50	-0.03	0.24	-0.16	0.24	206.8
3	0.88	0.05	0.93	0.65	0.01	0.28	-0.16	0.28	206.8
4	0.77	0.08	0.81	0.56	0.03	0.26	-0.12	0.26	206.8
5	0.69	-0.03	0.75	0.50	-0.07	0.19	-0.22	0.19	206.8
6	0.74	0.05	0.79	0.57	0.03	0.30	-0.11	0.30	206.8
Ave	0.74	0.03	0.79	0.55	-0.01	0.25	-0.16	0.25	
Std Dev	0.08	0.04	0.08	0.06	0.04	0.04	0.04	0.04	
LEVEL FLY-BY									
13	0.22	0.02	0.26	0.24	0.03	0.19	0.00	0.19	212.1
14	0.39	0.03	0.40	0.31	0.02	0.20	-0.05	0.20	212.1
15	0.18	-0.05	0.22	0.17	-0.04	0.10	-0.09	0.10	212.1
16	0.20	-0.11	0.22	0.15	-0.11	0.06	-0.16	0.06	212.1
17	0.02	-0.15	0.07	0.05	-0.13	0.01	-0.16	0.01	212.1
18	0.20	-0.04	0.24	0.19	-0.03	0.14	-0.06	0.14	212.1
Ave	0.20	-0.05	0.23	0.18	-0.04	0.12	-0.09	0.12	
Std Dev	0.12	0.07	0.11	0.09	0.07	0.07	0.06	0.07	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.7.a

SIKORSKY CH53 HELICOPTER

DOT/TSC
1/11/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 15,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
28	0.42	0.09	0.44	0.32	0.05	0.14	-0.04	0.14	119.(
29	0.40	0.05	0.42	0.28	0.00	0.09	-0.10	0.09	119.0
30	0.40	0.04	0.43	0.30	0.01	0.12	-0.08	0.1[illegible]	119.0
Ave	0.41	0.06	0.43	0.30	0.02	0.12	-0.07	0.12	
Std Dev	0.01	0.03	0.01	0.02	0.03	0.03	0.03	0.03	
TAKEOFF									
19	0.86	0.14	0.86	0.55	0.05	0.18	-0.16	0.18	134.9
20	0.65	0.07	0.66	0.43	0.01	0.18	-0.14	0.18	134.9
21	0.36	-0.03	0.41	0.27	-0.06	0.07	-0.16	0.07	134.9
22	0.67	0.09	0.68	0.45	0.03	0.20	-0.13	0.20	134.9
24	0.98	0.17	0.91	0.58	0.07	0.16	-0.15	0.15	134.9
Ave	0.70	0.09	0.70	0.46	0.02	0.16	-0.15	0.16	
Std Dev	0.24	0.08	0.20	0.12	0.05	0.05	0.01	0.05	
LEVEL FLY-BY									
25	0.73	0.13	0.73	0.49	0.05	0.20	-0.10	0.20	150.0
26	0.52	0.00	0.54	0.36	-0.04	0.13	-0.16	0.13	150.0
27	0.74	0.14	0.74	0.49	0.06	0.18	-0.11	0.19	150.0
Ave	0.66	0.09	0.67	0.45	0.02	0.17	-0.12	0.17	
Std Dev	0.12	0.08	0.11	0.08	0.06	0.04	0.03	0.04	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION 6, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

**- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.7.b

SIKORSKY CH53 HELICOPTER — DOT/FSC 1/15/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 — BASELINE 150 N. SOUTH — JUNE 15,1978

ATMOSPHERIC CORRECTIONS &
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 30/60	36/95	80/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT RANGE ## (METERS)
APPROACH									
28	0.97	0.14	0.98	0.62	0.03	0.18	-0.19	0.18	193.4
29	1.02	0.21	1.03	0.68	0.11	0.26	-0.10	0.26	193.4
30	0.82	0.08	0.84	0.54	-0.01	0.18	-0.20	0.18	193.4
Ave	0.94	0.14	0.95	0.61	0.04	0.21	-0.16	0.21	
Std Dev	0.10	0.07	0.10	0.07	0.08	0.05	0.06	0.05	
TAKEOFF									
19	0.90	0.08	0.93	0.61	0.01	0.21	-0.19	0.21	203.6
20	0.86	0.06	0.90	0.59	0.00	0.22	-0.19	0.22	203.6
21	0.90	0.11	0.94	0.64	0.04	0.26	-0.16	0.26	203.6
22	0.92	0.10	0.97	0.64	0.03	0.24	-0.17	0.24	203.6
24	1.14	0.22	1.15	0.75	0.10	0.27	-0.14	0.27	203.6
Ave	0.94	0.11	0.98	0.65	0.04	0.24	-0.17	0.24	
Std Dev	0.46	0.07	0.49	0.32	0.03	0.12	0.09	0.12	
LEVEL FLY-BY									
25	1.57	0.11	1.39	0.85	-0.04	0.40	-0.30	0.40	212.1
26	1.62	0.21	1.45	0.83	0.09	0.32	-0.16	0.32	212.1
27	1.66	0.15	1.47	0.91	-0.01	0.43	-0.28	0.43	212.1
Ave	1.62	0.16	1.44	0.86	0.01	0.38	-0.25	0.38	
Std Dev	0.05	0.05	0.04	0.04	0.07	0.06	0.08	0.06	

& - ATMOSPHERIC CORRECTIONS CALCULATED FOR PWATM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.7.c

SIKORSKY CH53 HELICOPTER

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

DOT/FAA
1/16/79

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 15,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT ** RANGE (METERS)
APPROACH									
28	0.50	0.01	0.55	0.37	-0.02	0.15	-0.14	0.15	193.4
29	0.44	0.00	0.47	0.33	-0.03	0.13	-0.14	0.13	193.4
30	0.61	0.07	0.63	0.44	0.03	0.20	-0.09	0.20	193.4
Ave	0.52	0.03	0.56	0.38	-0.00	0.16	-0.12	0.16	
Std Dev	0.09	0.04	0.07	0.06	0.03	0.04	0.03	0.04	
TAKEOFF									
19	0.93	0.13	0.95	0.64	0.06	0.26	-0.13	0.26	203.6
20	0.88	0.16	0.90	0.61	0.09	0.28	-0.08	0.28	203.6
21	0.82	0.09	0.85	0.55	0.02	0.21	-0.16	0.21	203.6
22	0.82	0.07	0.84	0.54	0.00	0.19	-0.18	0.19	203.6
24	0.60	0.02	0.65	0.43	-0.03	0.16	-0.16	0.16	203.6
Ave	0.81	0.09	0.84	0.55	0.03	0.22	-0.14	0.22	
Std Dev	0.12	0.05	0.11	0.08	0.05	0.05	0.04	0.05	
LEVEL FLY-BY									
25	0.64	0.06	0.68	0.48	0.03	0.25	-0.09	0.25	212.1
26	0.60	-0.07	0.64	0.43	-0.10	0.17	-0.23	0.17	212.1
27	0.83	0.09	0.84	0.56	0.02	0.24	-0.15	0.24	212.1
Ave	0.69	0.03	0.72	0.49	-0.02	0.22	-0.16	0.22	
Std Dev	0.12	0.09	0.11	0.07	0.07	0.04	0.07	0.04	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.8.a

GAZELLE SA 3160 HELICOPTER (FRENCH)

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

DOT/FSC
1/11/79

SITE NO. 1 CENTERLINE - CENTER JUNE 15,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
37	0.65	0.17	0.67	0.47	0.11	0.21	-0.02	0.21	119.0
38	0.59	0.08	0.62	0.41	0.02	0.14	-0.12	0.14	119.0
39	0.54	0.08	0.55	0.37	0.03	0.17	-0.10	0.17	119.0
41	0.57	0.10	0.60	0.40	0.04	0.14	-0.09	0.14	119.0
42	0.65	0.14	0.68	0.47	0.08	0.19	-0.06	0.19	119.0
Ave	0.60	0.11	0.62	0.42	0.06	0.17	-0.08	0.17	
Std Dev	0.05	0.04	0.05	0.04	0.04	0.03	0.04	0.03	
TAKEOFF									
31	1.67	0.37	1.53	0.98	0.14	0.36	-0.22	0.36	123.1
32	1.86	0.31	1.67	0.94	0.06	0.30	-0.32	0.30	123.1
33	1.83	0.43	1.67	1.08	0.18	0.41	-0.21	0.41	123.1
34	2.18	0.41	1.99	1.10	0.15	0.38	-0.23	0.38	123.1
35	1.70	0.34	1.54	0.97	0.10	0.33	-0.27	0.33	123.1
36	1.95	0.39	1.77	1.03	0.13	0.37	-0.25	0.37	123.1
Ave	1.87	0.37	1.70	1.02	0.13	0.36	-0.25	0.36	
Std Dev	0.19	0.04	0.17	0.06	0.05	0.04	0.04	0.04	
LEVEL FLY-BY									
43	1.76	0.32	1.59	1.01	0.08	0.40	-0.27	0.40	150.0
44	1.63	0.26	1.48	0.93	0.04	0.36	-0.29	0.36	150.0
45	1.76	0.33	1.60	1.02	0.10	0.41	-0.25	0.41	150.0
46	1.77	0.36	1.62	1.04	0.12	0.43	-0.22	0.43	150.0
47	1.67	0.27	1.51	0.95	0.04	0.36	-0.29	0.36	150.0
48	1.60	0.23	1.45	0.90	0.01	0.32	-0.32	0.32	150.0
Ave	1.70	0.29	1.54	0.97	0.06	0.38	-0.27	0.38	
Std Dev	0.07	0.05	0.07	0.06	0.04	0.04	0.04	0.04	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PINK NOISE SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL - CPA REFERENCE

Table F.6.b

GAZELLE SA-341G HELICOPTER(FREEDOM) DOT/TSC
1/16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 ft. SOUTH JUNE 15,1978

ATMOSPHERIC CORRECTIONS @
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT @@ RANGE
EVENT	36/60	36/95	65/70	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
37	1.11	0.21	1.13	0.76	0.12	0.31	-0.12	0.31	193.4
38	1.19	0.25	1.21	0.82	0.14	0.32	-0.11	0.32	193.4
39	1.00	0.16	1.02	0.69	0.07	0.27	-0.15	0.27	193.4
40	1.02	0.16	1.06	0.71	0.07	0.27	-0.15	0.27	193.4
41	0.95	0.11	0.98	0.64	0.02	0.21	-0.20	0.21	193.4
42	1.20	0.25	1.20	0.78	0.11	0.27	-0.15	0.27	193.4
Ave	1.08	0.19	1.10	0.73	0.09	0.27	-0.15	0.27	
Std Dev	0.10	0.06	0.10	0.07	0.04	0.04	0.03	0.04	
TAKEOFF									
31	2.99	0.57	2.70	1.80	0.18	0.58	-0.37	0.58	195.9
32	2.70	0.55	2.42	1.52	0.16	0.62	-0.38	0.62	195.9
33	2.70	0.52	2.43	1.51	0.13	0.58	-0.42	0.58	195.9
34	2.53	0.43	2.27	1.39	0.06	0.48	-0.47	0.48	195.9
35	2.66	0.54	2.40	1.50	0.16	0.59	-0.37	0.59	195.9
36	2.54	0.47	2.28	1.42	0.10	0.55	-0.41	0.55	195.9
Ave	2.69	0.51	2.42	1.49	0.13	0.57	-0.40	0.57	
Std Dev	0.17	0.05	0.16	0.08	0.04	0.05	0.04	0.05	
LEVEL FLY-BY									
43	3.64	1.19	3.31	2.26	0.21	1.16	-0.45	1.16	212.1
44	2.37	0.37	2.12	1.33	0.05	0.52	-0.42	0.52	212.1
45	3.45	1.08	3.14	2.11	0.15	1.08	-0.48	1.08	212.1
46	2.51	0.49	2.28	1.46	0.16	0.61	-0.33	0.61	212.1
47	2.54	0.49	2.29	1.45	0.14	0.62	-0.33	0.62	212.1
48	2.42	0.42	2.19	1.38	0.09	0.53	-0.39	0.53	212.1
Ave	2.82	0.67	2.55	1.67	0.13	0.75	-0.40	0.75	
Std Dev	0.57	0.36	0.53	0.41	0.06	0.29	0.06	0.29	

@ - ATMOSPHERIC CORRECTIONS CALCULATED FOR PMLTN SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

@@- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

GAZELLE SA-3140 HELICOPTER (FRENCH)

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

DOT/TSC
1/18/79

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 15,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT ** RANGE (METERS)
APPROACH									
37	1.82	0.20	1.64	0.9?	0.07	0.38	-0.24	0.38	193.4
38	1.27	0.12	1.22	0.8?	0.01	0.35	-0.23	0.35	193.4
39	1.25	0.12	1.21	0.82	0.01	0.35	-0.23	0.35	193.4
40	1.28	0.12	1.24	0.83	0.01	0.34	-0.25	0.34	193.4
41	1.99	0.38	1.81	1.17	0.13	0.51	-0.26	0.51	193.4
42	1.36	0.17	1.31	0.88	0.05	0.38	-0.21	0.38	193.4
Ave	1.50	0.18	1.41	0.91	0.05	0.38	-0.24	0.38	
Std Dev	0.32	0.10	0.26	0.14	0.05	0.06	0.02	0.06	
TAKEOFF									
31	2.47	0.43	2.21	1.37	0.08	0.53	-0.41	0.53	195.9
32	2.55	0.47	2.26	1.41	0.10	0.60	-0.39	0.60	195.9
33	2.43	0.43	2.16	1.35	0.08	0.56	-0.40	0.56	195.9
34	2.49	0.41	2.21	1.36	0.05	0.54	-0.44	0.54	195.9
35	2.45	0.39	2.16	1.34	0.04	0.55	-0.42	0.55	195.9
36	2.49	0.43	2.21	1.37	0.07	0.56	-0.41	0.56	195.9
Ave	2.48	0.43	2.20	1.37	0.07	0.56	-0.41	0.56	
Std Dev	0.04	0.03	0.04	0.02	0.02	0.02	0.02	0.02	
LEVEL FLY-BY									
43	2.75	0.50	2.43	1.48	0.05	0.58	-0.51	0.58	212.1
44	2.50	0.28	2.22	1.26	-0.03	0.44	-0.38	0.44	212.1
45	1.99	0.21	1.70	1.07	0.04	0.50	-0.28	0.50	212.1
46	2.43	0.39	2.16	1.34	0.07	0.54	-0.39	0.54	212.1
47	3.05	0.75	2.75	1.75	0.09	0.76	-0.33	0.76	212.1
48	2.2?	0.35	2.06	1.28	0.05	0.52	-0.39	0.52	212.1
Ave	2.50	0.41	2.22	1.36	0.04	0.56	-0.38	0.56	
Std Dev	0.37	0.19	0.35	0.23	0.04	0.11	0.08	0.11	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PINK SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.9.a

BELL 206L HELICOPTER

DOT/TSC
1-11/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 16,1978

ATMOSPHERIC CORRECTIONS @
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT @@ RANGE
	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
7	0.36	0.06	0.40	0.30	0.05	0.16	-0.03	0.16	119.0
8	0.36	0.05	0.39	0.28	0.03	0.13	-0.05	0.13	119.0
9	0.43	0.04	0.45	0.30	0.00	0.10	-0.10	0.10	119.0
10	0.43	0.06	0.45	0.31	0.02	0.12	-0.08	0.12	119.0
11	0.46	0.08	0.48	0.33	0.04	0.14	-0.06	0.14	119.0
12	0.26	-0.01	0.30	0.21	-0.03	0.09	-0.09	0.09	119.0
Ave	0.38	0.05	0.41	0.29	0.02	0.12	-0.07	0.12	
Std Dev	0.07	0.03	0.06	0.04	0.03	0.03	0.03	0.03	
TAKEOFF									
1	1.02	0.25	1.02	0.68	0.13	0.24	-0.09	0.24	149.5
2	0.94	0.19	0.94	0.61	0.09	0.20	-0.13	0.20	149.5
3	1.81	0.32	1.64	0.99	0.06	0.35	-0.26	0.35	149.5
4	1.45	0.16	1.28	0.78	-0.04	0.26	-0.35	0.26	149.5
5	1.49	0.23	1.35	0.84	0.03	0.31	-0.28	0.31	149.5
6	1.62	0.32	1.47	0.95	0.10	0.41	-0.22	0.41	149.5
Ave	1.39	0.24	1.28	0.81	0.06	0.29	-0.22	0.29	
Std Dev	0.34	0.07	0.27	0.15	0.06	0.08	0.10	0.08	
LEVEL FLY-BY									
13	0.75	0.13	0.75	0.50	0.05	0.21	-0.10	0.21	150.0
14	0.42	-0.03	0.45	0.31	-0.05	0.14	-0.15	0.14	150.0
15	0.82	0.16	0.81	0.54	0.07	0.22	-0.11	0.22	150.0
16	0.80	0.13	0.79	0.52	0.04	0.17	-0.15	0.17	150.0
17	0.77	0.12	0.78	0.53	0.05	0.21	-0.12	0.21	150.0
18	0.72	0.06	0.63	0.39	0.02	0.10	-0.14	0.10	150.0
Ave	0.71	0.10	0.70	0.46	0.03	0.17	-0.13	0.17	
Std Dev	0.15	0.07	0.14	0.09	0.04	0.05	0.02	0.05	

@ - ATMOSPHERIC CORRECTIONS CALCULATED FOR PINK SPECTRA PER APPENDIX A, SECTION 4, PAR 3a, AT EXTREMES OF T/RH BOXES.
T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

@@- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.9.b

BELL 206L HELICOPTER

DOT-TSC
1-16-79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIDELINE 150 M. SOUTH JUNE 16,1978

ATMOSPHERIC CORRECTIONS *
(dB re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
7	0.50	0.00	0.53	0.35	-0.03	0.14	-0.15	0.14	193.4
8	0.78	0.08	0.79	0.51	0.01	0.19	-0.16	0.19	193.4
9	1.74	0.21	1.60	0.95	0.06	0.27	-0.22	0.27	193.4
10	0.95	0.12	0.95	0.59	0.02	0.20	-0.18	0.20	193.4
11	1.02	0.14	1.02	0.63	0.03	0.23	-0.18	0.23	193.4
12	0.70	0.03	0.71	0.43	-0.04	0.14	-0.20	0.14	193.4
Ave	0.95	0.10	0.93	0.58	0.00	0.19	-0.18	0.19	
Std Dev	0.43	0.08	0.37	0.21	0.04	0.05	0.03	0.05	
TAKEOFF									
1	1.24	0.19	1.25	0.78	0.06	0.26	-0.20	0.26	213.5
2	1.17	0.19	1.17	0.74	0.06	0.25	-0.17	0.25	213.5
3	1.20	0.24	1.29	0.82	0.10	0.29	-0.16	0.29	213.5
4	1.16	0.18	1.16	0.75	0.06	0.27	-0.18	0.27	213.5
5	1.10	0.15	1.10	0.71	0.04	0.26	-0.19	0.26	213.5
6	1.21	0.22	1.20	0.77	0.10	0.28	-0.13	0.26	213.5
Ave	1.19	0.19	1.20	0.76	0.07	0.27	-0.17	0.27	
Std Dev	0.06	0.03	0.07	0.04	0.02	0.01	0.02	0.01	
LEVEL FLY-BY									
13	1.32	0.24	1.33	0.86	0.11	0.33	-0.15	0.33	212.1
14	1.03	0.09	1.01	0.63	-0.02	0.22	-0.23	0.22	212.1
15	1.5[illegible]	0.14	1.36	0.74	0.01	0.24	-0.24	0.24	212.1
16	1.02	0.10	1.01	0.63	0.00	0.22	-0.21	0.22	212.1
17	1.34	0.11	1.17	0.73	0.00	0.24	-0.25	0.24	212.1
18	1.01	0.14	1.00	0.65	0.04	0.27	-0.15	0.27	212.1
Ave	1.21	0.14	1.15	0.71	0.02	0.25	-0.20	0.25	
Std Dev	0.23	0.05	0.17	0.09	0.05	0.04	0.04	0.04	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PINK SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH - TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL - CPA REFERENCE

Table F.9.c

BELL 206L HELICOPTER

DOT/TSC
1/18/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIMLIN 150 M. NORTH JUNE 16,1978

ATMOSPHERIC CORRECTIONS *
(dF re 20 micro PASCAL)

	OUTER WINDOW EXTREMES				INNER WINDOW EXTREMES				SLANT ** RANGE
EVENT	36/60	36/95	85/20	95/20	59/60	95/60	59/90	95/90	(METERS)
APPROACH									
7	0.57	0.04	0.63	0.44	0.01	0.21	-0.11	0.21	193.4
8	0.49	0.08	0.55	0.35	0.11	0.11	-0.23	0.11	193.4
9	0.61	-0.03	0.67	0.41	-0.08	0.13	-0.23	0.13	193.4
10	0.61	0.04	0.6	0.46	0.01	0.22	0.12	0.22	193.4
11	0.64	0.01	0.68	0.41	-0.03	0.17	-0.18	0.17	193.4
12	0.41	-0.08	0.45	0.27	-0.11	0.08	0.25	0.06	193.4
Ave	0.56	-0.02	0.61	0.40	-0.05	0.15	-0.13	0.15	
Std De.	0.09	0.06	0.09	0.07	0.06	0.06	0.06	0.06	
TAKEOFF									
1	0.98	0.05	0.90	0.55	-0.04	0.16	-0.24	0.16	213.5
2	0.92	0.07	0.93	0.58	-0.02	0.20	-0.21	0.20	213.5
3	0.85	0.06	0.86	0.54	-0.02	0.19	-0.20	0.19	213.5
4	0.94	0.12	0.96	0.62	0.04	0.25	-0.15	0.25	213.5
5	0.98	0.16	1.00	0.66	0.06	0.29	-0.11	0.29	213.5
6	1.03	0.15	1.04	0.67	0.05	0.27	-0.15	0.27	213.5
Ave	0.93	0.10	0.95	0.60	0.01	0.23	-0.18	0.23	
Std Dev	0.07	0.05	0.07	0.06	0.05	0.05	0.05	0.05	
LEVEL FLY BY									
13	0.79	0.02	0.78	0.50	-0.05	0.21	0.22	0.21	212.1
14	0.65	0.08	0.66	0.44	0.03	0.21	-0.10	0.21	212.1
15	0.88	0.03	0.80	0.55	-0.05	0.20	-0.24	0.20	212.1
16	0.63	0.03	0.63	0.40	-0.02	0.17	-0.15	0.17	212.1
17	1.26	0.04	1.17	0.75	-0.07	0.35	-0.30	0.35	212.1
18	0.62	0.08	0.65	0.48	0.06	0.29	-0.05	0.29	212.1
Ave	0.80	0.05	0.79	0.52	-0.02	0.24	-0.18	0.24	
Std Dev	0.25	0.03	0.21	0.12	0.05	0.07	0.09	0.07	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

F-26

Table F.10.a

HUGHES 500 HELICOPTER

DOT TSC
1/11/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 1 CENTERLINE - CENTER JUNE 16,1978

ATMOSPHERIC CORRECTIONS @
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	95/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT @@ RANGE (METERS)
APPROACH									
26	0.31	-0.03	0.33	0.22	-0.05	0.08	-0.13	0.08	119.0
28	0.42	0.04	0.45	0.32	0.01	0.15	-0.08	0.15	119.0
29	0.40	0.01	0.43	0.30	-0.01	0.12	-0.11	0.12	119.0
30	0.56	0.10	0.58	0.40	0.05	0.17	-0.07	0.17	119.0
31	0.47	0.10	0.50	0.36	0.07	0.19	-0.02	0.19	119.0
32	0.34	0.00	0.38	0.26	-0.03	0.09	-0.12	0.09	119.0
33	0.35	0.00	0.38	0.27	-0.02	0.11	-0.10	0.11	119.0
41	0.41	0.06	0.45	0.32	0.03	0.17	-0.05	0.17	119.0
42	0.46	0.05	0.48	0.34	0.02	0.15	-0.09	0.15	119.0
43	0.51	0.11	0.54	0.40	0.08	0.21	-0.02	0.21	119.0
Ave	0.42	0.04	0.45	0.32	0.02	0.14	-0.08	0.14	
Std Dev	0.08	0.05	0.08	0.06	0.04	0.04	0.04	0.04	
TAKEOFF									
19	0.83	0.16	0.88	0.59	0.08	0.22	-0.11	0.22	160.5
20	0.98	0.22	1.01	0.68	0.11	0.23	-0.11	0.23	160.5
22	0.92	0.17	0.95	0.64	0.08	0.21	-0.13	0.21	160.5
23	0.86	0.13	0.90	0.59	0.05	0.18	-0.16	0.18	160.5
24	0.99	0.22	1.03	0.69	0.12	0.23	-0.11	0.23	160.5
25	1.02	0.25	1.06	0.72	0.15	0.26	-0.08	0.26	160.5
Ave	0.93	0.19	0.97	0.65	0.10	0.22	-0.12	0.22	
Std Dev	0.08	0.05	0.07	0.05	0.04	0.03	0.03	0.03	
LEVEL FLY-BY									
34	1.05	0.29	0.93	0.61	0.20	0.19	-0.02	0.19	150.0
35	0.90	0.20	0.92	0.63	0.11	0.25	-0.09	0.25	150.0
36	0.93	0.20	0.95	0.63	0.11	0.24	-0.10	0.24	150.0
37	0.81	0.14	0.83	0.55	0.06	0.21	-0.13	0.21	150.0
38	0.86	0.17	0.88	0.59	0.08	0.23	-0.11	0.23	150.0
39	0.86	0.14	0.88	0.57	0.05	0.19	-0.15	0.19	150.0
40	0.87	0.13	0.88	0.58	0.04	0.19	-0.16	0.19	150.0
Ave	0.90	0.18	0.90	0.59	0.09	0.21	-0.11	0.21	
Std Dev	0.08	0.06	0.04	0.03	0.05	0.03	0.05	0.03	

@ - ATMOSPHERIC CORRECTIONS CALCULATED FOR PINK NOISE SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

@@- SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE

Table F.10.b

HUGHES 500 HELICOPTER

DOT/TSC
1 16/79

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 4 SIMULINE 150 ft. SOUTH JUNE 16,1978

ATMOSPHERIC CORRECTIONS @
(dB re 20 µPa) TO EASCAL

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT RANGE (METERS)
APPROACH									
26	0.29	0.10	0.34	0.13	0.11	0.08	0.18	0.08	193.4
28	0.80	0.08	0.82	0.56	0.02	0.26	0.15	0.26	193.4
29	0.74	0.09	0.79	0.54	0.04	0.26	-0.11	0.26	193.4
30	1.22	0.24	1.09	0.64	0.11	0.27	-0.18	0.27	193.4
31	0.79	0.06	0.81	0.52	0.00	0.20	-0.17	0.20	211.7
32	0.83	0.04	0.86	0.55	0.03	0.18	-0.22	0.18	193.4
33	0.00	0.14	0.13	0.17	0.06	0.17	-0.06	0.17	193.4
41	1.02	0.23	1.04	0.71	0.14	0.29	-0.06	0.29	193.4
42	1.22	0.27	1.26	0.82	0.13	0.25	0.12	0.25	193.4
43	0.83	0.08	0.82	0.53	0.01	0.20	0.16	0.20	193.4
Ave	0.78	0.08	0.82	0.55	0.04	0.22	-0.14	0.22	
Std Dev	0.35	0.14	0.36	0.23	0.08	0.06	0.05	0.06	
TAKEOFF									
19	1.29	0.22	1.30	0.83	0.10	0.30	-0.16	0.30	221.4
20	1.36	0.23	1.39	0.91	0.11	0.33	-0.19	0.33	221.4
22	1.37	0.25	1.40	0.93	0.12	0.36	-0.16	0.36	221.4
23	0.80	-0.01	0.83	0.55	0.06	0.23	-0.24	0.23	221.4
24	1.30	0.22	1.33	0.89	0.11	0.36	-0.15	0.36	221.4
25	1.46	0.23	1.51	0.96	0.10	0.30	-0.22	0.30	221.4
Ave	1.26	0.19	1.29	0.84	0.08	0.31	-0.19	0.31	
Std Dev	0.24	0.10	0.24	0.15	0.07	0.05	0.04	0.05	
LEVEL FLY-BY									
34	1.28	0.22	1.26	0.80	0.09	0.29	-0.17	0.29	212.1
35	1.42	0.14	1.33	0.99	0.01	0.46	-0.22	0.46	212.1
36	1.04	0.14	1.04	0.67	0.04	0.26	-0.17	0.26	212.1
37	1.19	0.06	1.02	0.66	-0.02	0.25	-0.24	0.25	212.1
38	1.01	0.03	1.03	0.63	-0.06	0.17	-0.29	0.17	212.1
39	0.68	-0.06	1.09	0.86	-0.11	0.61	-0.26	0.61	212.1
40	1.13	0.14	1.14	0.75	0.03	0.27	-0.21	0.27	212.1
Ave	1.11	0.10	1.13	0.75	-0.00	0.33	-0.22	0.33	
Std Dev	0.24	0.09	0.12	0.10	0.07	0.15	0.04	0.15	

TEMPERATURE/RELATIVE HUMIDITY ANALYSIS

SITE NO. 5 SIDELINE 150 M. NORTH JUNE 14-1978

ATMOSPHERIC CORRELTIONS *
(dB re 20 micro PASCAL)

EVENT	OUTER WINDOW EXTREMES 36/60	36/95	85/20	95/20	INNER WINDOW EXTREMES 59/60	95/60	59/90	95/90	SLANT ** RANGE (METERS)
APPROACH									
26	0.71	0.07	0.76	0.53	0.03	0.27	-0.11	0.27	193.4
28	0.74	0.11	0.77	0.56	0.07	0.32	-0.07	0.32	193.4
29	0.61	0.03	0.85	0.50	-0.01	0.26	-0.18	0.26	193.4
30	0.87	0.07	0.89	0.58	0.01	0.24	-0.18	0.24	193.4
31	0.6[illegible]	0.02	0.72	0.49	-0.01	0.22	-0.16	0.22	193.4
32	0.72	0.04	0.76	0.51	0.00	0.23	-0.16	0.23	193.4
33	0.78	0.02	0.83	0.57	-0.02	0.25	-0.18	0.25	193.4
41	0.72	0.04	0.76	0.52	0.00	0.24	-0.15	0.24	193.4
42	0.66	0.01	0.72	0.48	-0.02	0.20	-0.17	0.20	193.4
43	0.60	-0.05	0.65	0.42	-0.09	0.14	-0.22	0.14	193.4
Ave	0.73	0.04	0.77	0.52	-0.00	0.24	-0.16	0.24	
Std Dev	0.08	0.04	0.07	0.05	0.04	0.05	0.04	0.05	
TAKEOFF									
19	0.99	0.05	1.02	0.66	-0.02	0.26	-0.23	0.26	221.4
20	1.22	0.17	1.25	0.83	0.06	0.32	-0.18	0.32	221.4
22	0.91	0.01	0.95	0.60	-0.06	0.21	-0.26	0.21	221.4
23	1.08	0.08	1.11	0.71	-0.01	0.27	-0.23	0.27	221.4
24	1.16	0.12	1.19	0.79	0.04	0.30	-0.20	0.30	221.4
25	1.10	0.09	1.13	0.73	0.00	0.27	-0.23	0.27	221.4
Ave	1.08	0.09	1.11	0.72	0.00	0.27	-0.22	0.27	
Std Dev	0.11	0.06	0.11	0.08	0.04	0.04	0.03	0.04	
LEVEL FLY-BY									
34	1.03	0.14	1.02	0.67	0.05	0.31	-0.14	0.31	212.1
35	1.02	0.13	1.04	0.70	0.05	0.30	-0.15	0.30	212.1
36	0.09	-0.28	0.16	0.17	-0.21	0.16	-0.22	0.16	212.1
37	0.99	0.10	1.01	0.67	0.02	0.28	-0.18	0.28	212.1
38	1.00	0.06	1.00	0.65	-0.02	0.26	-0.22	0.26	212.1
39	1.04	0.11	1.03	0.66	0.00	0.23	-0.21	0.23	212.1
40	0.90	0.10	0.88	0.59	0.03	0.29	-0.14	0.29	212.1
Ave	0.87	0.05	0.88	0.59	-0.01	0.26	-0.18	0.26	
Std Dev	0.35	0.15	0.32	0.19	0.09	0.05	0.04	0.05	

* - ATMOSPHERIC CORRECTIONS CALCULATED FOR PNLTM SPECTRA PER APPENDIX A, SECTION d, FAR 36, AT EXTREMES OF T/RH WHERE, T/RH = TEMPERATURE (DEGREES F)/RELATIVE HUMIDITY (%)

** - SLANT RANGE REFERENCE = SLANT RANGE ACTUAL = CPA REFERENCE